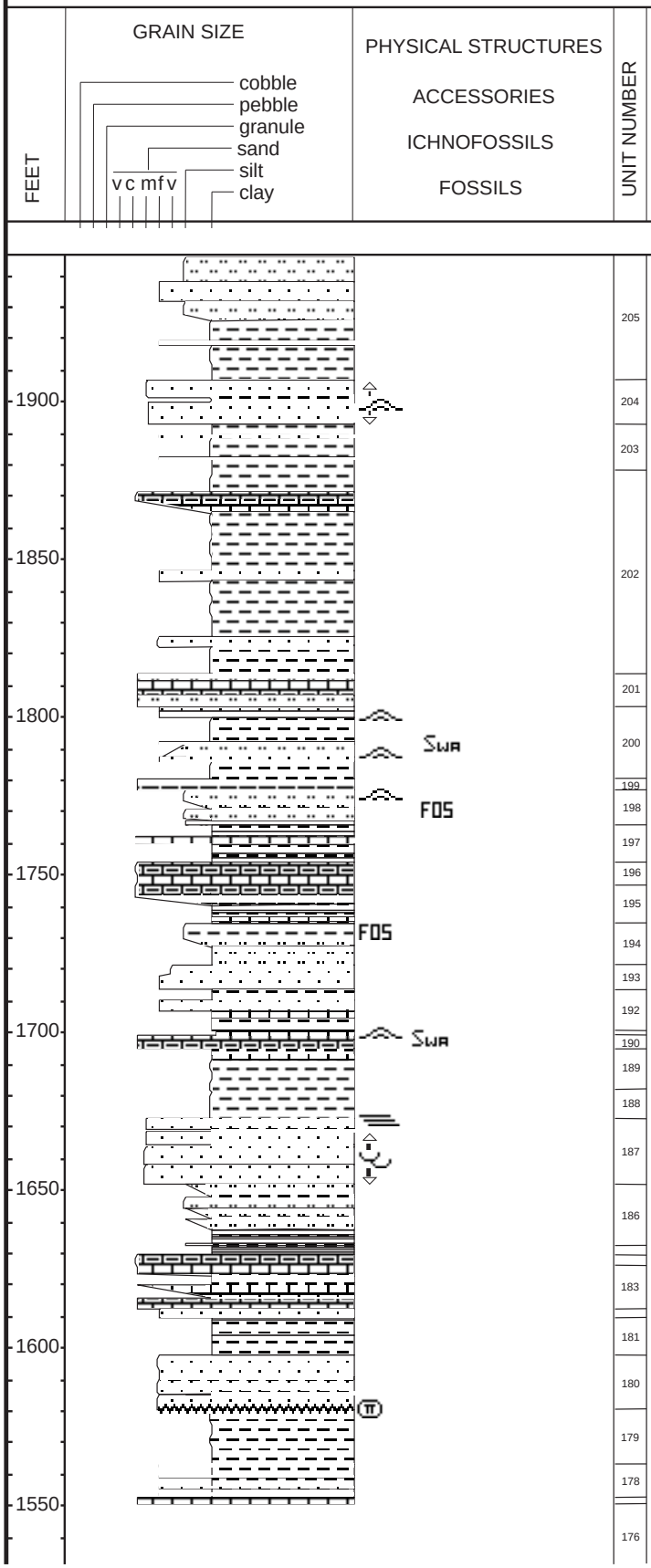
Back to Table of Contents Back to Report

UGS 1

Willow Creek Canyon

The section begins 3 miles north of the Carbon and Duchesne County line on U.S. Highway 191 in the NE1/4SE1/4 section 23, and ends 5.4 miles north of the county line following the highway in the NE1/4NW1/4 section 12, T. 11 S., R. 10 E., of the Salt Lake Base line and Meridian, Duchesne County, Utah.



Unit number (measured section thickness [cumulative] in feet) - Lithologic description

END OF ROAD CUT

Unit 205 (1907-1946): Shale, siltstone, and some sandstone, shale and siltstone are green, sandstone beds are thin, (maximum 6 feet) overlain by green shale.

Unit 204 (1893-1907): Sandstone and some shale, sandstone is light-brown to light-gray, medium-grained, subangular, porous, conglomeratic base, sandstone beds thinning upward, many of the beds are wave rippled on top, interbedded green shale.

Unit 203 (1878-1893): Shale and sandstone, shale is green with a few thin (2-6 inch) sandstone beds.

Unit 202 (1814-1878): Shale, siltstone, and muddy limestone, shale is light-gray, silty, some brown and green, thin sandstone and muddy limestone beds, muddy limestone beds thickening upward (maximum 6-feet thick).

Unit 201 (1803.5-1814): Muddy limestone and some limy siltstone, muddy limestone is light-tan, some large scale ripples and some internal channelling, siltstone, light-gray.

Unit 200 (1781-1803.5): Shale, siltstone, and sandstone, shale is green, sandstone beds are 0-2 feet, some are channel-form others are laterally continous, fine-grained, light-brown, calcareous, rounded, some swalely bedding and climbing ripples.

Unit 199 (1777-1781): Limy mudstone, light tan weathers light-tan to orange.

Unit 198 (1766-1777): Siltstone and some shale, siltstone gray to dark-gray, weather green, very to mildly calcareous, some wave ripples near top, trace of fossil fragments, laterally cut by a small channel with low-angle accretion beds.

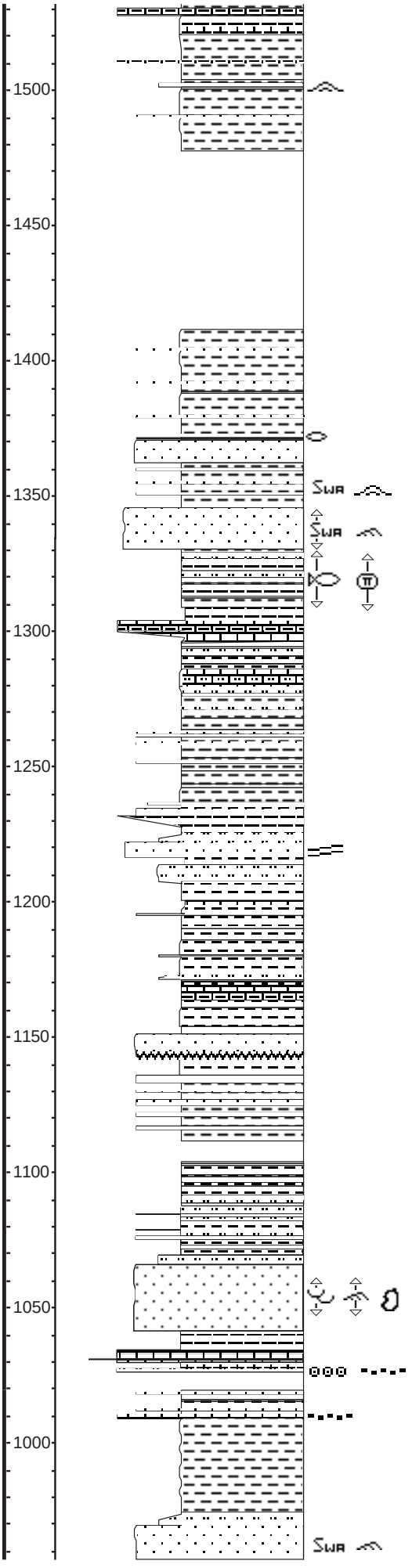
Unit 197 (1754-1766): Shale and muddy limestone, shale green, limestone beds are 6-12 inches thick.

Unit 196 (1747-1754): Muddy limestone.

Unit 195 (1735-1747): Limy mudstone and green shale, limestone is light-tan weathers to light-tan to orange, near base of unit 1-foot limestone and 1-foot shale, gradually increasing upward in thickness of limestone and thinning of shale.

Unit 194 (1722-1735): Shale to siltstone, green, a few layers of fossil fragments.

Unit 193 (1714-1722): Sandstone, light-gray, medium-grained, friable, porous, non to slightly calcareous, grading upward to very fine grained, laterally discontinous, channel sandstone.



174
172
170
169
168
166
165
164
163
162
161
160
159
158
157
155
154
152
151
149
148
146
144
143
142
141
140
139
138
137
136
133
132
130
129
127

Unit 192 (1701-1714): Shale and some silty limestone to silty mudstone, and limestone to limy mudstone, shale is green to gray and red, unit is capped with a 6-to 12-inch-thick limestone to limy mudstone,orange.

Unit 191 (1698-1701): Limy siltstone to silty limestone, light gray to gray, some ripple and swaley bedding.

Unit 190 (1695-1698): Muddy limestone light-gray, light-tan, weathers light-gray.

Unit 189 (1682-1695): Shale and limestone, red and purple shale with one limestone bed (1.5 feet) gray, silty.

Unit 188 (1673-1682): Shale, highly weathered slope. Road cut discontinuous.

NEXT ROAD CUT

Unit 187 (1652-1673): Sandstone, base is light-gray, conglomeritic, medium-grained, porous, friable, highly trough cross-bedded, channel-form bed, lateral accretion beds with red and green shale interbedded, becoming more planar towards top of unit, overlain by red and purple shale.

Unit 186 (1633-1652): Shale and siltstone, thin red shale mostly green shale and siltstone (gradational), siltstone beds thicken and increasing in number upward. Coarsening upward.

Unit 185 (1629-1633): Shale and muddy limestone, shale green.

Unit 184 (1627-1629): Muddy limestone light-tan.

Unit 183 (1613-1627): Muddy limestone light-tan, and green shale.

Unit 182 (1610-1613): Sandstone, major landslide block, project up roadcut past landslide.

Unit 181 (1598-1610): Shale, green and red, becoming more red towards top of unit, purple shale at top of unit.

Unit 180 (1581-1598): Sandstone, some siltstone and shale, channel-form sandstone with large lateral accretion beds with siltstone and shale between the accretion beds, unit is conglomertic at base, with some gar scales. Example of one accretion bed from channel to bank; sandstone-green siltstone-red shale.

Unit 179 (1564.5-1581): Shale, red and green, laterally (at upper bend of S-curve) this unit is deeply cut by a well-expose channel-form bed composed of sandstone and interbedded shale.

Unit 178 (1553-1564.5): Shale and sandstone, shale green with interbedded red, some sandstone beds, increasing in number upward, about 1-foot thick, laterally continuous.

Unit 177 (1551-1553): Muddy limestone.

Unit 176 (1531-1551): Shale, green.

Unit 175 (1528-1531): Muddy limestone, light-brown, weathers orange.

Unit 174 (1511.5-1528): Shale, green to gray, grading to limy mudstone.

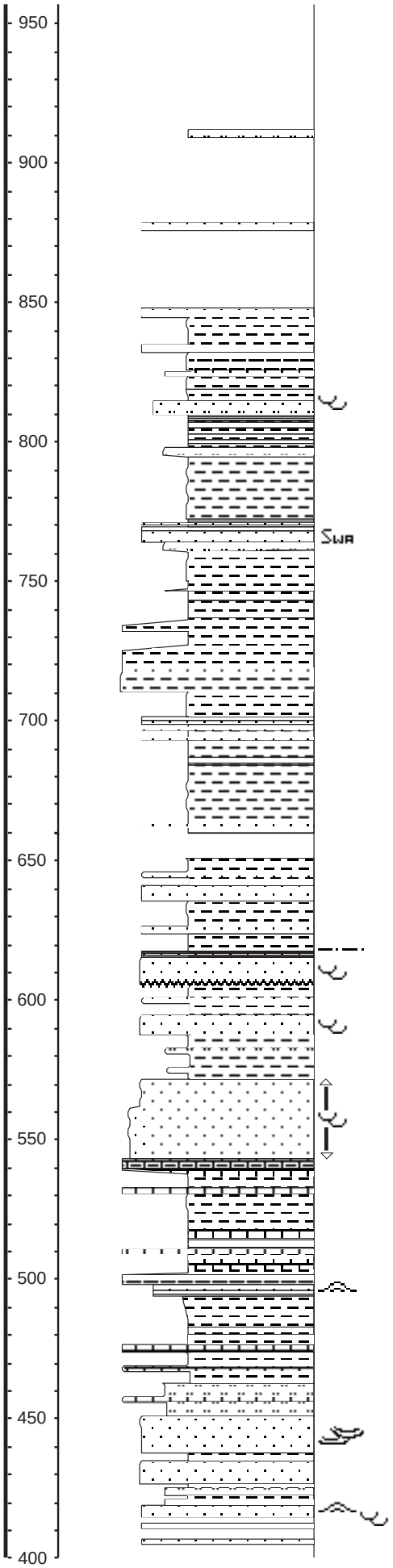
Unit 173 (1510.5-1511.5): Muddy limestone, light-brown, weathers orange.

Unit 172 (1504-1510.5): Shale, green, some channel-forms filled with green shale.

Unit 171 (1501.5-1504): Siltstone and shale, siltstone beds (two) light-gray to gray, slightly calcareous, wave rippled at base, interbedded with 2-inch green shale that grades upward to mudstone to siltstone.

Unit 170 (1478-1501.5): Shale, siltstone, and sandstone, shale is green, weathered, one 1-foot sandstone bed, very fine grained, light-gray to light-brown, discontinuous, finning upward to silty shale, interbedded red and green shale near top 6 inches of unit.

Unit 169 (1412-1478): Covered.



126

125

123

122

120

118

117

116

114

112

108

106

105

104

103

102

101

99

97

96

95

93

92

90

88

86

83

82

81

80

76

75

74

73

72

71

69

67

66

64

62

60

58

57

55

54

53

52

END OF ROAD CUT, BEGINNING OF S TURN

Unit 168 (1373-1412): Shale and sandstone, shale green, possibly some red, highly weathered slope, definite red shale bed at 1,377 feet, some sandstone beds 2 to 6 inches thick.

Unit 167 (1370-1373): Sandstone and shale, lenticular sandstone beds becoming very discontinous near top of unit, interbedded thin fissile shale.

Unit 166 (1363-1370): Sandstone, channel-form bed.

Unit 165 (1346-1363): Shale and sandstone, shale is green, sandstone beds are 6-10 inch thick, swaley cross-bedding with some ripples.

Unit 164 (1330.5-1346): Sandstone, light-gray, medium-to fine-grained, climbing ripples with heavy minerals in troughs, some swaley beds, channel-form bed.

Unit 163 (1309-1330.5: Shale, siltstone, and limy mudstone, shale is green with a few thin (1-3 inch) red shale beds, thin (1-4 inch) siltstone beds, gray, calcareous, and some limy mudstone, light-gray, weathers light-tan, with traces of gar scales and possibly bone.

Unit 162 (1304-1309): Limy mudstone, green to brown.

Unit 161 (1286-1304): Shale, siltstone, limy mudstone, shale is green weathered, thin siltstone beds grading to silty limestone to brown muddy limestone.

Unit 160 (1264-1286): Shale, siltstone to silty limestone, shale is green, weathered, a few thin siltstone beds gradational to silty limestone.

BEND IN ROAD, ROAD CUT CONTINUOUS

Unit 159 (1248.5-1264): Shale, siltstone and sandstone, shale and siltstone beds green, upward increase in thin (4-6 inch) small discontinuous channel-form sandstone beds, very fine grained sandstone, laterally equivalent to larger channel-form sandstone bed (1237.5-1241).

Unit 158 (1238-1248.5): Shale, siltstone, and limestone, green shale and siltstone with thin orange limestone.

Unit 157 (1235-1238): Shale and sandstone, shale is green, sandstone is 8-inch thick, gray to light-gray, very fine grained, calcareous.

Unit 156 (1232-1235): Sandstone, channel-form bed laterally thins and overlies another channel-form sandstone bed that is equivalent to the upper part of the underlying siltstone and shale unit 155.

Unit 155 (1222.5-1232): Siltstone and shale, green, some brown to orange, siltstone gradational to shale to mudstone.

Unit 154 (1217-1222.5): Sandstone and interbedded shale, numerous large channel-form sandstone beds, medium-grained, low angle cross-bedding, with thin interbedded green shale.

Unit 153 (1214-1217): Limy mudstone, light-brown to light-tan, weathers light-tan to orange.

Unit 152 (1210-1214): Shale, and siltstone, shale is green, unit is highly weathered slope.

Unit 151 (1196-1201): Shale and interbedded sandstone, shale is green, sandstone light-gray, very fine grained, calcareous, becoming silty limestone near top of unit, finning upward sequence.

Unit 150 (1184-1196): Sandstone, light-gray, fine-grained, channel-form bed, calcareous.

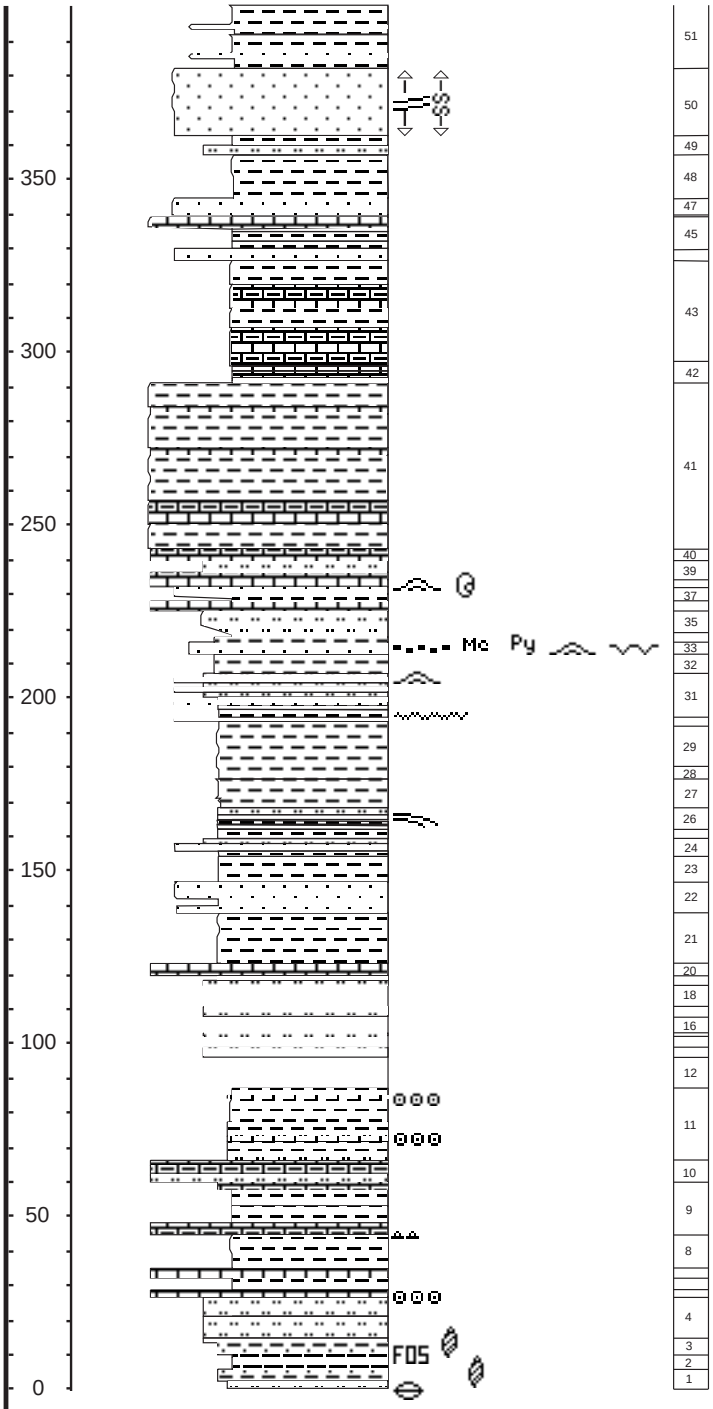
Unit 149 (1186-1184): Shale and interbedded sandstone, shale is green, sandstone beds thickening upward, coarsening upward sequence.

Unit 148 (1181-1186): Shale, green to gray.

END OF ROAD CUT

Unit 147 (1180-1181): Siltstone, gray to brown, weathers orange, calcareous.

Unit 146 (1172-1180): Siltstone and shale, green, weathered, calcareous, first 2 feet are siltstone, gradational to shale.



Unit 145 (1169-1172): Shale, brown, to possible oil shale, fissile, calcareous.

Unit 144 (1151.5-1169): Shale, green, silty, calcareous, grading upward to brown shale and muddy limestone very calcareous, capped with brown shale to possible oil shale, very slightly calcareous.

Unit 143 (1143-1151.5): Sandstone, fine-grained, channel-form bed cutting down into green shale, lateral accretion beds with green shale interbedded, channel direction about N40°W.

Unit 142 (1112-1143): Shale, green, highly weathered, some thin sandstone beds (2-6 inches), light-brown, very fine to fine-grained, increasing in number of beds, towards the top. Coarsening upward sequence.

Unit 141 (1106-1112): Covered.

Unit 140 (1088-1106): Shale, green, with thin (1-4 inch) siltstone beds, siltstone beds becoming fewer and thinner towards top of unit.

END OF ROAD CUT

Unit 139 (1071-1088): Shale, siltstone and limy siltstone, some thin sandstone beds, green to gray-green.

Unit 138 (1067.5-1071): Bottom 3 feet is siltstone, gray-green, grading upward to brown shale. Top 0.5 feet is shale black, papery, dolomitic oil shale.

Unit 137 (1042.5-1067.5): Sandstone, very fine grain, calcareous, micaceous, some black (bitumen?) fragments, slight fining upward. Large lateral accretion beds, some small scale trough cross-beds and climbing ripples. A few concretions about 1-foot diameter, very calcareous sandstone.

Unit 136 (1031-1042.5): Five feet muddy limestone, tan at base grading upward to dark-brown on top and more calcareous. One inch chert bed 1.5 feet up from base of bed. Overlain by 6.5 feet mudstone, dolomitic, brown, shaley, becoming more resistant toward top of unit which grades upward to limy mudstone. Thin (1 inch) algal layer 2.5 feet above base of bed. Overlain by mudstone, dolomitic, gray to green-gray, highly weathered.

Unit 135 (1028.5-1031): Limy mudstone, tan to gray-green overlain by 1 foot dolomitic mudstone, tan to light-brown, shaley top.

Unit 134 (1026-1028.5): Siltstone, weathered, green to gray-green, calcareous, overlain by 0.5 feet limestone, dark-gray, crystalline, some ooids and black (carboniferous) fragments.

Unit 133 (1020-1026): Covered.

END OF ROAD CUT.

Unit 132 (1011-1020): Shale, green, with interbedded thin (1-foot) siltstone and sandstone beds.

Unit 131 (1009-1011): Limestone to limy siltstone, orange, lots of specks and pieces of coaly organic material.

Unit 130 (978-1009): Shale, green, highly weathered, very poor exposure.

Unit 129 (972-978): Siltstone to shale, green, highly weathered.

Unit 128 (970-972): Siltstone, light-gray to light-green, thin bedded, badly broken up. Sandstone, channel form, swalely near top, badly broken up.

Unit 127 (957-970): Sandstone, channel form, swalely and climbing ripples, badly broken up unit.

Unit 126 (918-957): Covered.

Unit 125 (912-918): Mostly covered, some siltstone to very fine sandstone.

Unit 124 (909-912): Shale, green with interbedded siltstone, light-gray to light-green.

Unit 123 (906-909): Covered.

Unit 122 (894-906): Covered, dug. Weathered green shale and siltstone.

Unit 121 (891-894): Covered.

Unit 120 (879-891): Covered, dug a few inches found mostly green shale and thin interbedded siltstone to very fine grained sandstone.

Unit 119 (876-879): Sandstone, light-gray, poorly exposed in gully between road cuts.

Unit 118 (848-876): Covered

Unit 117 (845-848): Sandstone, light-gray to light-brown, very fine grained, very calcareous.

Unit 116 (835-845): Mudstone, green, some light-gray to light-brown, color changes are gradual, very calcareous, shaley in places.

Unit 115 (832-835): Sandstone, light-gray to light-green, very fine grained, calcareous, hard, tight.

Unit 114 (826-832): Mudstone, green, silty, very calcareous.

Unit 113 (824-826): Siltstone to silty limestone.

Unit 112 (815-824): Shale to mudstone, green.

Unit 111 (813-815): Sandstone, very fine grained, trough cross-bedded.

Unit 110 (810-813): Siltstone to sandstone, very fine grained, overlies channel that cuts underlying unit.

Unit 109 (807-810): Shale, interbedded red and green, laterally this unit is cut out by a channel-form sandstone that is laterally very limited.

Unit 108 (801-807): Shale to siltstone, light-gray to green, siltstone bed 6-8-inch thick with interbedded 2-to 4-inch-thick green shale to mudstone, slightly calcareous.

Unit 107 (798-801): Mudstone to shale, green to black.

Unit 106 (792-798): Shale to siltstone, green becoming light gray, limy thinly bedded siltstone near top or unit.

Unit 105 (774-792): Shale, green.

Unit 104 (768-774): Shale, green with interbedded calcareous siltstone and sandstone beds about 6 inches thick.

Unit 103 (764-768): Sandstone, light-gray, friable, calcareous, some swalely cross-bedding, fining upward.

Unit 102 (759-764): Shale to siltstone, green.

Unit 101 (753-759): Shale, red.

Unit 100 (750-753): Shale,

Unit 99 (747-750): Siltstone to silty shale, green.

Unit 98 (743-747): Shale, red to purple, and some green.

Unit 97 (732-743): Shale to silty shale, green, weathered.

Unit 96 (726-732): Shale, red and green.

Unit 95 (720-726): Shale, red, weathered.

Unit 94 (717-720): Shale, red, weathered, with thin (4-6 inch) discontinuous sandstone beds.

Unit 93 (711-717): Shale, red, weathered.

Unit 92 (702-711): Shale, green, weathered.

Unit 91 (699-702): Sandstone with interbedded thin (2-4 inch) green shale to siltstone beds.

Unit 90 (694-699): Shale, red to maroon, with very thin (1 inch) green shale and 1-foot sandstone beds.

Unit 89 (693-694): Sandstone.

Unit 88 (687-693): Shale, green, weathered.

Unit 87 (684-687): Shale, black, gradual change from green.

Unit 86 (663-684): Shale, green, highly weathered.

Unit 85 (662-663): Sandstone.

Unit 84 (660-662): Shale, green, weathered.

Unit 83 (651-660): Covered slope.
END OF ROAD CUT

Unit 82 (641-651): Shale, green with interbedded sandstone beds that are generally laterally discontinuous and about 6 inches thick.

Unit 81 (636-641): Sandstone, very limited laterally.

Unit 80 (627-636): Shale, green, highly weathered.

Unit 79 (624-627): Sandstone.

Unti 78 (621-624): Shale, green.

Unit 77 (617-621): Shale, black, silty, siliceous, highly weathered, with thin laterally limited flaggy sandstone beds.

Unit 76 (606-617): Sandstone, channel-form bed completely cuts out the underlying green shale unit in one location, large trough cross-bedding with thin shale breaks near the top.

Unit 75 (595-606): Shale, green with interbedded sandstone beds 6 to 8 inches thick.

Unit 74 (588-595): Sandstone, cross-bedded becoming flaggy at top.

Unit 73 (572-588): Shale, green with interbedded thin (6 inch) calcareous siltstone beds.

Unit 72 (543-572): Sandstone, slightly calcareous, friable, near base: fine-to medium-grained, rounded to semi-angular, near top: fine-grained, semi-angular, large trough-bedded and accretionary beds.

Unit 71 (540-543): Muddy limestone brown to black, very gradual change from shale below.

Unit 70 (537-540): Shale, green with interbedded limestone.

Unit 69 (533-537): Shale, green.

Unit 68 (531-533): Limestone.

Unit 67 (519-531): Shale, green.

Unit 66 (511-519): Shale, green with interbedded limestone beds thickening upward in the unit from 4 to 6 inches near base to 12 to 20 inches near the top of the unit.

Unit 65 (509-511): Limestone to limy siltstone.

Unit 64 (498-509): Mudstone to silty shale, green, with a few thin (4 to 6 inch) limestone beds.

Unit 63 (496-498): Sandstone, light-gray, very fine grained, weathers tan, rippled on top.

Unit 62 (483-496): Shale, green, weathered, a few thin (4 inch) red shale beds, with thin 1-foot siltstone to very fine grained sandstone beds near top of the unit.

Unit 61 (480-483): Shale, red, weathered.

Unit 60 (477-480): Shale, green, weathered.

Unit 59 (474-477): Limestone.

Unit 58 (451-474): Shale to siltstone, green, with interbedded limestone beds 6 to 18 inches thick.

Unit 57 (438-451): Sandstone, cross-bedded, rooted near top.

Unit 56 (435-438): Shale, green.

Unit 55 (427-435): Sandstone.

Unit 54 (419-427): Shale to siltstone, green, with interbedded thin siltstone and sandstone beds.

Unit 53 (415-419): Sandstone, trough cross-bedded near base, wave rippled near top.

Unit 52 (400-415): Mostly covered. Some sandstone, very fine grained, 1- to 2-foot thick beds.

END OF ROAD CUT

Unit 51 (382-400): Shale, green with interbedded sandstone, very fine grained, 1 to 2 feet thick.

Unit 50 (363-382): Sandstone, irregular base, low angle cross-beds, some soft sediment contorted bedding

Unit 49 (357-363): Shale to siltstone, green with interbedded sandstone beds 1 to 3 feet thick.

Unit 48 (345-357): Shale, brown, highly weathered.

Unit 47 (340-345): Sandstone, light-gray, fine-grained, calcareous, rippled.

Unit 46 (339-340): Shale, green.

Unit 45 (330-339): Black shale, micritic limestone to limy shale, black, dark-gray, limestone is dense and hard.

Unit 44 (327-330): Sandstone and interbedded black shale.

Unit 43 (297-327): Muddy limestone to shale, muddy limestone is light-tan to brown, shale is black, siliceous, thin papery black shale at top of unit.

Unit 42 (291-297): Muddy limestone, light-gray to white, with thin (2 inch) yellow to orange siltstones.

Unit 41 (243-291): Muddy limestone to shale brown to light-tan to occasionally black, weathers gray to black, papery at base becoming more calcareous and dense towards top of unit.

Unit 40 (240-243): Shale, brown, not calcareous, weathers gray like oil shale.

Unit 39 (234-240): Muddy limestone to siltstone, muddy limestone brown, siltstone is light-brown to tan, calcareous.

Unit 38 (232-234): Limestone, ostracodal, wave rippled on top.

Unit 37 (228-232): Sandstone and shale, coarsing upward.

Unit 36 (225-228): Muddy limestone, brown, highly weathered, overlain by thin papery brown shale.

Unit 35 (219-225): Siltstone, light-brown to tan, calcareous.

Unit 34 (216-219): Shale to siltstone, green.

Unit 33 (213-216): Sandstone, light-brown, very fine grained, slightly calcareous, some black organic material, mica and pyrite, rippled and mudcracks near top.

Unit 32 (207-213): Shale, green with interbedded thin (1 to 3 inches) sandstone.

Unit 31 (195-207): Shale to siltstone, brown, with interbedded sandstone beds 1 to 3 feet thick, lenticular, slightly scour base, wave rippled on top.

Unit 30 (192-195): Shale, brown with thin 1-foot sandstone.

Unit 29 (180-192): Shale, brown, highly weathered.

Unit 28 (177-180): Shale, silty, green to brown.

Unit 27 (168-177): Shale, silty, green.

Unit 26 (162-168): Shale to silty shale, green with thin interbedded siltstone to sandstone beds, calcareous.

Unit 25 (159-162): Shale, green.

Unit 24 (153-159): Shale to siltstone, green, with thin lenticular sandstone beds.

Unit 23 (147-153): Shale, green.

Unit 22 (138-147): Sandstone and interbedded mudstone, sandstone fine-grain, brown to tan, calcareous; mudstone green.

Unit 21 (123-138): Shale, green, weathered slope.

Unit 20 (120-123): Limestone, silty, tan to brown, hard, dense.

Unit 19 (117-120): Siltstone to silty shale interbedded with thin shale, green, calcareous.

Unit 18 (111-117): Covered.

Unit 17 (108-111): Siltstone, poor exposure.

Beginning of second road cut

Unit 16 (103-108): Covered.

END OF ROAD CUT

Unit 15 (102-103): Siltstone and silty shale.

Unit 14 (99-102): Covered.

Unit 13 (96-99): Siltstone, gray, poor exposure.

Unit 12 (87-96): Covered.

Unit 11 (66-87): Silty shale and shale, dark-brown to brown, calcareous, weathers gray to black, siltstone; black to dark-brown calcareous thin papery shale, a few thin 8-10 inch oolitic limestones.

Unit 10 (60-66): Silty shale to muddy limestone, brown weathers gray to black, grading upward to limestone.

Unit 9 (45-60): Muddy limestone and shale, brown muddy limestone, black silty shale, near base small pebbles about 0.5 inches, oblong, chert center with siliceous growth around the chert.

Unit 8 (35-45): Shale, gray to black, thin limy, weathers gray.

Unit 7 (32.5-35): Limestone, light brown to tan, hard, dense.

Unit 6 (29-32.5): Shale, black to brown, weathers gray.

Unit 5 (27-29): Limestone, light-gray to tan, oolitic at base.

Unit 4 (15-27): Interbedded brown siltstone, and black shale, siltstone 3-6 inches, black shale about 3 inches, coally layer at 21 feet less than 1 inch thick.

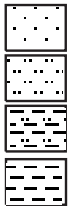
Unit 3 (9-15): Shale to silty shale to siltstone, gray to black, with abundant fossil hash (gastropods).

Unit 2 (6-9): Gray to black mudstone containing lots of fossil hash.

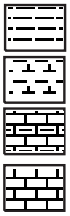
Unit 1 (0-6): Limy siltstone to silty shale, light brown, base contains large mollusc shells, top contains shell hash of smaller gastropods.

LEGEND

LITHOLOGY



Sandstone
Siltstone
Silty Shale
Shale



Shale and Mudstone
Limy Shale/Mudstone
Muddy Limestone
Limestone

Covered Slope
Coal
Oil Shale
Chert

CONTACTS

Scoured

PHYSICAL STRUCTURES

- Trough Cross-Strat.
- Soft-Sediment Deformation
- Cross-Bedding
- Planar Lamination
- Ripples
- Scour
- Swaley Cross-Strat.
- Lenticular Bedding
- Low Angle Tabular Bedding
- Mud Cracks
- Climbing Ripples
- Concretions/Nodules

LITHOLOGIC ACCESSORIES

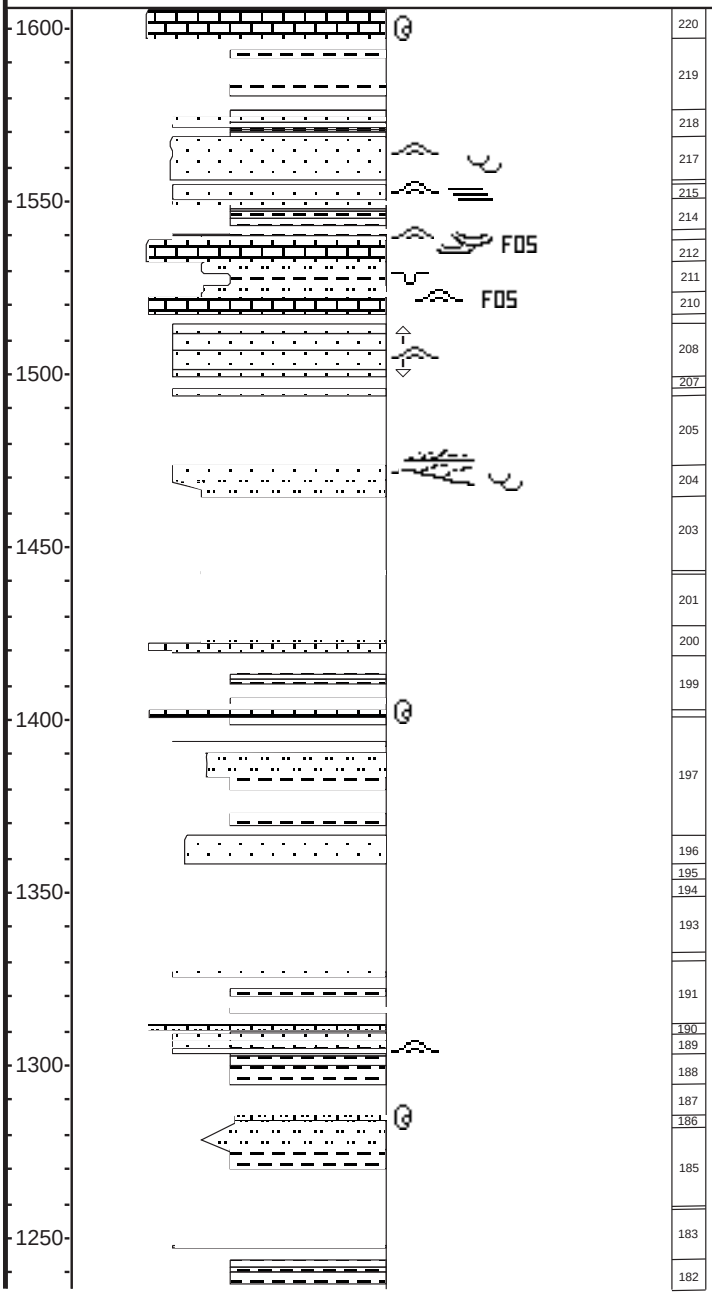
- Cherty
- Micaceous
- Pyrite
- Oolites
- Clasts
- Silty

FOSSILS

- Molluscs (undifferentiated)
- Fish Scales
- Gastropods
- Fish Bone
- Ostracodes
- Fossils

UGS-2
Argyle Ridge

The section is in Nine Mile Canyon and begins at the canyon floor in the SE1/4SE1/4 section 11, and goes up the canyon wall ending near the top of Argyle Ridge in the NE1/4NW1/4 section 11 T. 12 S., R. 13 E, of the Salt Lake Base line and Meridian, Carbon County, Utah.



Unit number (measured section thickness [cumulative] in feet) - Lithologic description

Unit 220 (1597.5-1605.5): Limestone, ostracodal.

Unit 219 (576.5-1597.5): Covered slope, mostly gray to green shale.

Unit 218 (1568.5-1576.5): Covered slope, mostly interbedded shale and sandstone.

Unit 217 (1556.5-1568.5): Sandstone, fine-to very fine grained, mostly massive, calcareous, some trough cross-bedding (N65°E) lower portion of sandstone upward to highly wave rippled upper 6 feet.

Unit 216 (1554.5-1556.5): Covered slope.

Unit 215 (1550.5-1554.5): Sandstone, fine-to very fine grained, calcareous, planar bedded grading upward to slightly wave rippled near top of unit.

Unit 214 (1541.5-1550.5): Covered slope, mostly gray shale and thin sandstone beds.

Unit 213 (1538.5-1541.5): Sandstone, light-gray, fine-to medium grained, porous, channel form with cross-bedding at base, some high angle, and some ripples, some interbedded siltstone and shale.

Unit 212 (1532.5-1538.5): Limestone, light-gray weathers orange, thin layers of fossil hash and some bone, laterally pinches out to the west.

Unit 211 (1523.5-1532.5): Siltstone and interbedded gray-green shale, some highly burrowed.

Unit 210 (1517.5-1523.5): Limestone, light-gray, weathers orange, some fossil fragments (plates and bones), becoming wave rippled siltstone on top of unit.

Unit 209 (1514.5-1517.5): Covered slope, mostly gray-green shale.

Unit 208 (1499.0-1514.5): Sandstone with interbedded siltstone and shale, sandstone is light-gray, very fine grained, with some wave ripples, shale is green.

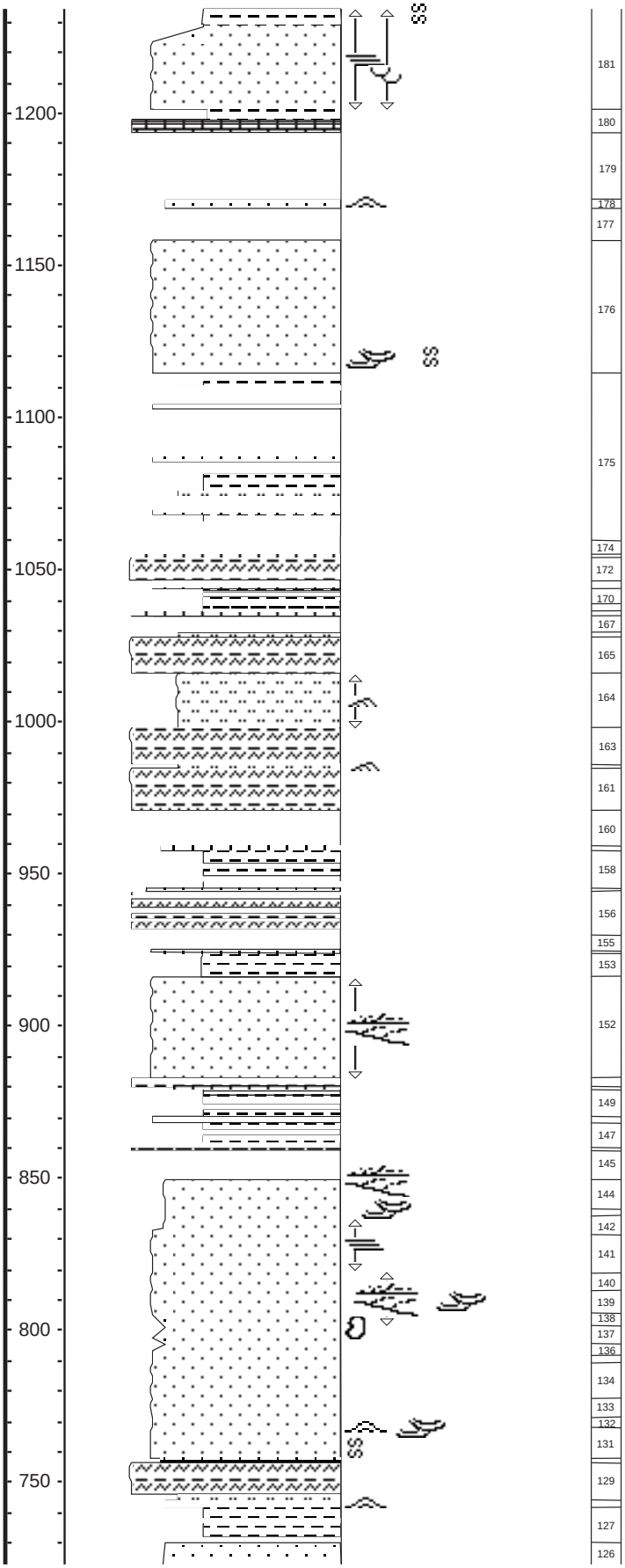
Unit 207 (1496.0-1499.0): Covered slope, mostly green shale.

Unit 206 (1493.5-1496.0): Sandstone, light-gray, very fine grained, slightly calcareous, highly wave rippled at base and top of unit.

Unit 205 (1473.5-1493.5): Covered slope, mostly weathered green and gray shale, some purple.

Unit 204 (1464.5-1473.5): Siltstone to sandstone, green to greenish-gray, coarsening upward with increasing sandstone, very fine grained, trough and wedge shaped beds, wave rippled in upper half of unit.

Unit 203 (1443.0-1464.5): Covered slope, mostly weathered red to reddish-brown and green shale.



Unit 202 (1442.5-1443.5): Siltstone, green, calcareous, laterally thickens from 6 inches to 3 feet, massive.

Unit 201 (1427.5-1442.5): Covered slope, mostly weathered red to reddish-brown and green shale.

Unit 200 (1418.5-1427.5): Covered slope, weathered limy mudstone, gray to gray-green, gradational change from silty siltstone.

Unit 199 (1403.5-1418.5): Covered slope, mostly weathered green shale, with some limy siltstone.

Unit 198 (1400.5-1403.5): Limestone, silty, light-gray to white, weathers orange, dense, some ostracodes, a few silty lenses.

Unit 197 (1366.5-1400.5): Covered slope, mostly weathered green shale with some red and purple, calcareous, occasionally grading to siltstone, one thin (6 inch) sandstone bed at 1396.5 feet.

Unit 196 (1358.5-1366.5): Sandstone, light-brown, very fine grained, well sorted, subangular to subround.

Unit 195 (1354.5-1358.5): Covered slope, moslty weathered greenish-gray shale.

Unit 194 (1348.5-1354.5): Covered slope, mostly weathered red shale.

Unit 193 (1333.5-1348.5): Covered slope mostly weathered green shale.

Unit 192 (1330.5-1333.5): Covered slope, weathered red shale.

Unit 191 (1312.5-1330.5): Covered slope with some green shale, and gradational siltstone and mudstone, calcareous.

Unit 190 (1309.5-1312.5): Covered slope consisting of sandstone and silty limestone.

Unit 189 (1303.0-1309.5): Sandstone, (3 beds) light-gray to light-brown, slightly calcareous, slightly wave rippled, each bed coarsening upward, with interbedded shale, gray to greenish-gray.

Unit 188 (1294.5-1303.0): Shale, green-gray, grading upward to siltstone.

Unit 187 (1285.5-1294.5): Covered slope, weathered red to reddish brown shale.

Unit 186 (1282.5-1285.5): Siltstone light-brown to brown to orange, calcareous, becoming silty limestone, some ostracodes.

Unit 185 (1259.5-1282.5): Covered slope with weathered green shale grading into calcareous green siltstone.

Unit 184 (1258.5-1259.5): Covered slope, weathered red shale.

Unit 183 (1243.5-1258.5): Covered slope, weathered green shale with one thin sandstone bed.

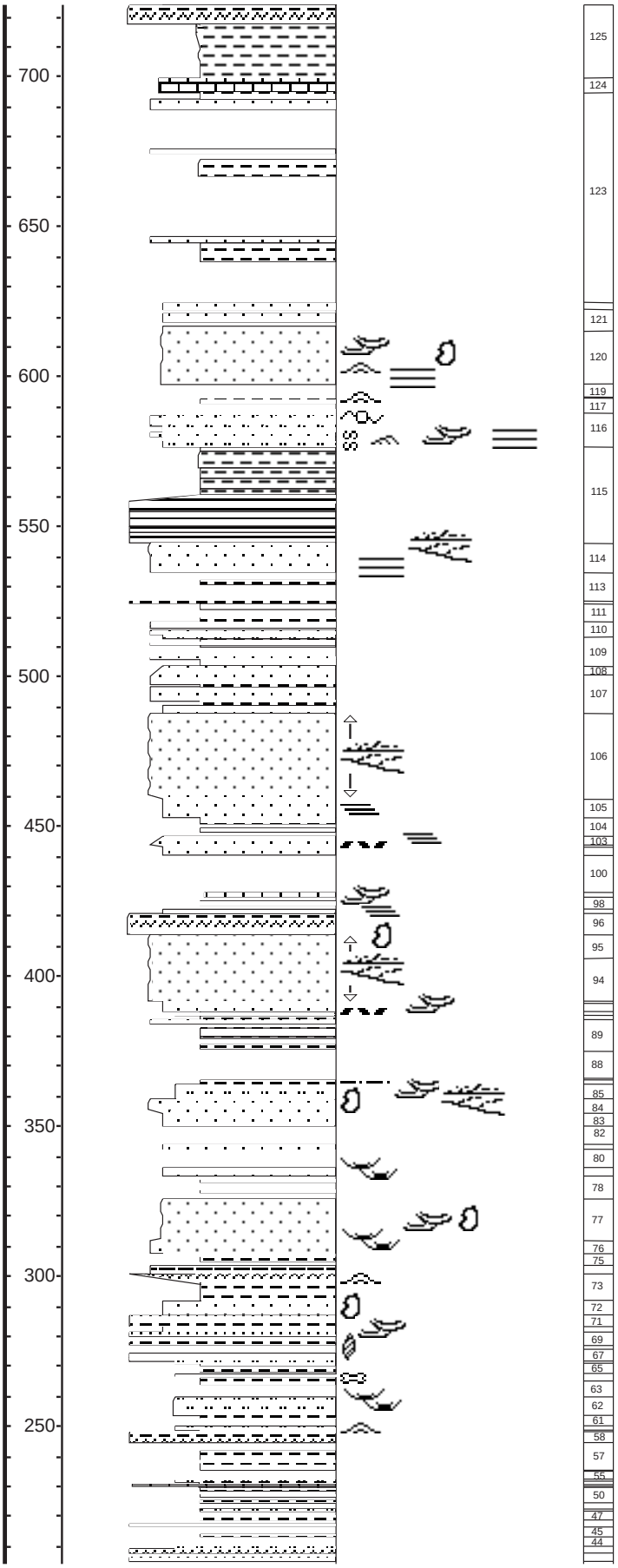
Unit 182 (1234.5-1243.5): Partially covered slope of green shale.

Unit 181 (1201.5-1234.5): Sandstone, light-brown, fine grain to very fine grained, slightly calcareous, channel form with some channel lags near base consisting of intra-formational clasts of limy mudstone, some trough cross-bedding 16 N 55 E , and some planar bedding. Becoming flaggy (about 1,219.5 feet) at top light brown, very fine grained, subround to subangular, very porous, grading upward into interbedded green shale and sandstone, some trough cross-bedding 8 N 2 E , some soft-sediment deformation near top of unit.

Unit 180 (1193.5-1201.5): Ostracodal limestone (3 feet) overlain by partly covered limestone, micritic, to gray limy shale, grading upward to limy mudstone.

Unit 179 (1171.5-1193.5): Covered slope, weathered green shale.

Unit 178 (1168.5-1171.5): Sandstone, very fine grained, friable, porous, ripple laminated.



Unit 177 (1158.5-1168.5): Covered slope, probably interbedded sandstone and shale.

Unit 176 (1114.5-1158.5): Sandstone, light-gray weathers light-brown, fine-grained, friable, porous, non-calcareous, channel-form bed with some cross-bedding at base, about 6 feet up from base abundant soft-sediment deformation, some thin shale breaks about 6 feet up from base, about 8 feet up from base a massive bed with cross-bedding overlain by large lateral accretion beds.

Unit 175 (1060.5-1114.5): Mostly covered slope of weathered green shale to calcareous siltstone, some red shale, some sandstone beds about 1-foot thick, light-gray to light-brown, fine- to very fine grained, dense, siliceous, some beds calcareous, sub-round to angular.

Unit 174 (1055.0-1060.5): Covered slope, likely purple-green shale/marlstone.

Unit 173 (1054.0-1055.0): Buff ostracodal limestone (packstone), dense, very good effervescence.

Unit 172 (1046.5-1054.0): Gray-green silty marlstone, moderately dense, fair effervescence, forms slope.

Unit 171 (1043.5-1046.5): Drab very fine sandstone with clay, moderately dense, fair effervescence.

Unit 170 (1039.5-1043.5): Gray-green marlstone/shale, increasing sand towards top, weathers medium to thin shaly partings, fair to good effervescence, forms slope.

Unit 169 (1036.5-1039.5): Tan limy mudstone, dense, very good effervescence.

Unit 168 (1034.5-1036.5): Buff ostracodal limestone (grainstone), dense, some very fine sandstone, fair effervescence.

Unit 167 (1029.5-1034.5): Covered slope.

Unit 166 (1028.0-1029.5): Buff siltstone with scattered ostracodes, dense, good effervescence.

Unit 165 (1016.0-1028.0): Gray-green silty marlstone, weathers medium to thin shaly partings, fair effervescence, forms slope.

Unit 164 (998.0-1016.0): Buff fine siltstone, moderately dense, wispy bedding (climbing ripples?), no effervescence.

Unit 163 (986.0-998.0): Gray-green marlstone, dense, weathers to medium shaly partings, no effervescence.

Unit 162 (984.5-986.0): Buff fine siltstone, wispy bedding (climbing ripples?), dense.

Unit 161 (971.0-984.5): Gray-green marlstone, dense, weathers to medium to thin shaly partings, forms slope, no effervescence.

Unit 160 (959.0-971.0): Covered slope, likely gray-green shale, weathers red.

Unit 159 (957.5-959.0): Buff, ostracodal limestone (grainstone), dense, good effervescence, forms small outcrop.

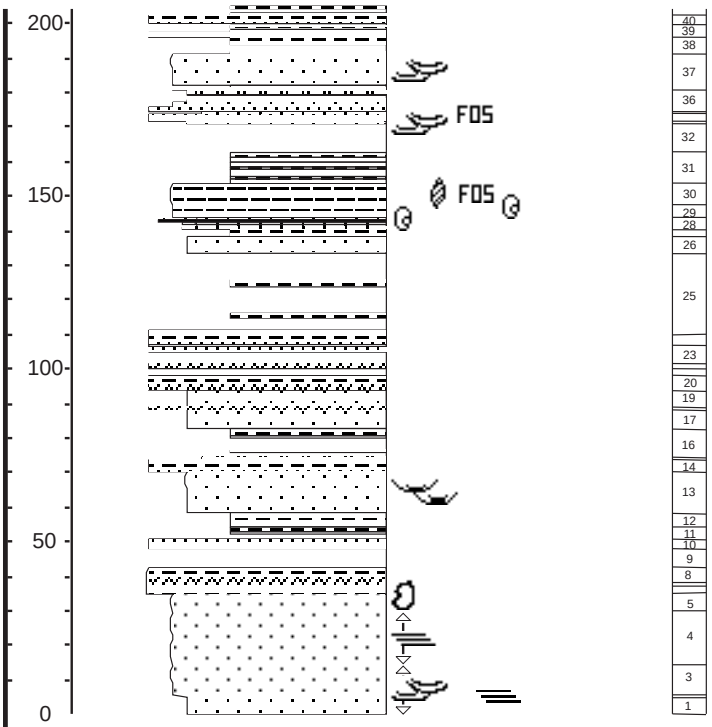
Unit 158 (945.0-957.5): Gray-green shale, weathers medium to thin shaly partings, no effervescence, forms covered slope.

Unit 157 (944.0-945.0): Buff, very fine grained sandstone, dense, no effervescence.

Unit 156 (930.0-944.0): Gray-green marlstone, slightly silty, forms covered slope, no effervescence.

Unit 155 (924.0-930.0): Covered slope.

Unit 154 (923.5-924.0): Buff ostracodal limestone (grainstone), dense, good effervescence, petroliferous odor upon HCl.



Unit 153 (916.0-923.5): Gray-green shale, weathers to thin shaly partings.

Unit 152 (883.0-916.0): Buff, fine-grained sandstone, medium wedge cross-bedding, probable channel.

Unit 151 (880.0-883.0): Tan-gray marlstone, dense, no

Unit 150 (879.0-880.0): Orange to tan ostracodal limestone (packstone) w/ some small rounded clasts, dense, very good effervescence.

Unit 149 (870.0-879.0): Shale, covered, forms slope

Unit 148 (868.0-870.0): Buff fine-grained sandstone, indistinct bedding, good effervescence.

Unit 147 (860.0-868.0): Shale, covered, forms slope.

Unit 146 (859.0-860.0): Light orange-brown limy silty mudstone, dense, very good effervescence.

Unit 145 (849.0-859.0): Covered slope, likely shale.

Unit 144 (840.0-849.0): Buff, fine-to very fine grained sandstone, some medium wedge cross-bedding, fair effervescence.

Unit 143 (837.0-840.0): Buff, very fine-grained sandstone, small scale cross-bedding.

Unit 142 (831.0-837.0): Buff, fine-to very fine grained sandstone, possible laminar bedding, fair effervescence.

Unit 141 (819.5-831.0): Buff, fine-grained sandstone, possible laminar bedding.

Unit 140 (813.5-819.5): Buff, fine-grained sandstone, medium wedge cross-bedding, fair effervescence.

Unti 139 (805.5-813.5): Buff, fine-grained sandstone, medium cross-bedding, weathers medium to thin partings, fair effervescence.

Unit 138 (801.5-805.5): Buff, fine-grained sandstone with medium wedge cross-bedding, fair effervescence.

Unit 137 (795.5-801.5): Buff, fine-grained to very fine-grained sandstone, abundant limonite concretions towards top, no effervescence, indistinct bedding.

Unit 136 (792.5-795.5): Buff, fine-grained to very fine-grained sandstone, laminar bedding, weathers to thin to very thin partings, fair effervescence.

Unit 135 (789.5-792.5): Buff fine-grained sandstone, planar bedding, no effervescence.

Unit 134 (777.5-789.5): Buff fine-grained sandstone.

Unit 133 (771.5-777.5): Buff fine-grained sandstone, laminar bedding, no effervescence.

Unit 132 (768.5-771.5): Buff fine-grained sandstone, possible small cross-bedding, good effervescence.

Unit 131 (757.5-768.5): Tan to buff, fine-grained to very fine-grained sandstone with soft-sediment deformation to 765.5 feet. Small scale cross-bedding with ripples towards top terminated by planar bedding at very top of unit, no effervescence.

Unit 130 (756.5-757.5): Tan ostracodal grainstone/packstone.

Unit 129 (743.5-756.5): Tan siltstone (2 feet) at base, moderate effervescence, upper part gray marlstone with good effervescence.

Unit 128 (741.5-743.5): Tan very fine sandstone, massive at base, ripples towards top, good effervescence.

Unit 127 (729.5-741.5): Tan to grayish-green shale, forms covered slope, no effervescence.

Unit 126 (723.5-729.5): Tan, very fine sandstone with small limonite concretions, moderate to good effervescence, blocky appearance.

Unit 125 (699.5-723.5): Tan to light-gray shale grades to thin bedded marlstone towards top. Occasional 1- to 2-feet dense, limey marlstone beds in the vicinity of 717 feet with good effervescence, some petroliferous.

Unit 124 (694.5-699.5): Gray-tan ostracodal (grainstone) limestone, strong effervescence, petroliferous, poorly exposed.

Unit 123 (625.5-694.5): Grayish-green shale forming covered slope with occasional thin bedded very fine sandstone at 645 feet, 675 feet and 693 feet.

Unit 122 (624.5-625.5): Buff, very fine sandstone, slight effervescence.

Unit 121 (615.5-624.5): Tan very fine sandstone (partially covered) thin bedded, slight effervescence.

Unit 120 (597.5-615.5): Tan to light-gray very fine sandstone, planar bedding at base changing to ripples then cross-bedding (unidirectional troughs N46°W) possible channel base 3 feet up, slight to moderate effervescence, some limonite concretions.

Unit 119 (594.0-597.5): Siltstone?, covered.

Unit 118 (593.5-594.0): Buff, very fine sandstone, ripples at base, moderate effervescence.

Unit 117 (587.5-593.5): Greenish-gray shale, forms covered slope.

Unit 116 (576.5-587.5): Two sequences of very fine grained sandstone coarsening upwards to fine grained sandstone. First lower sequence-3 feet very fine-grained to silty sandstone w/ horizontal bedding and soft-sediment deformation coarsening to a 2-foot-thick fine-grained sandstone w/ small cross-beds, some climbing ripples. Second upper sequence-2 feet very fine grained to silty sandstone coarsening upwards to 3 feet fine-grained sandstone w/ horizontal bedding, possible burrows, no effervescence.

Unit 115 (544.5-576.5): Greenish-gray claystone to shale, thins upward in section, no effervescence, forms slope.

Unit 114 (534.5-544.5): Buff, fine-to very fine grained sandstone, planar bedding at base, high angle cross-beds (wedge?) at top, good effervescence.

Unit 113 (525.0-534.5): Greenish-gray shale to marlstone, forms covered slope, good effervescence.

Unit 112 (524.5-525.0): Tan-gray marlstone, weathers orange, good effervescence.

Unit 111 (518.0-524.5): Greenish-gray shale to mudstone, slight effervescence, forms covered slope.

Unit 110 (512.5-518.0): Buff to light-gray, very fine to fine-grained sandstone, slight cross-bedding (poor expression), channel? wedge? slight to moderate effervescence, covered slope.

Unit 109 (503.33-512.5): Buff to light-gray (with iron oxide streaks) siltstone to very fine grained sandstone, three 1-foot-thick beds interbedded in a clay matrix, no distinct sedimentary structure, slightly effervescent.

Unit 108 (500.33-503.33): Light-gray to buff, very fine grained sandstone, non distinct cross-bedding, (wedge shaped?) possible ripples-channel?

Unit 107 (487.33-500.33): Gray 1- to 2-foot thick very fine to fine-grained sandstone with interbedded gray shale forming covered slope, moderately strong effervescence.

Unit 106 (459.33-487.33): Buff, punky, fine to very fine-grained sandstone, large scale wedge cross-bedding.

Unit 105 (452.33-459.33): Light-tan very fine grained sandstone, laminar bedding, weathers to thin to very thin shaly partings.

Unit 104 (446.33-452.33): Gray silty shale, weathers to thin shaly partings, no effervescence, forms slope.

Unit 103 (444.33-446.33): Buff fine-to very fine grained sandstone, moderately dense, planar bedding, fair effervescence.

Unit 102 (443.33-444.33): Buff, very fine-grained sandstone with abundant iron oxide stained ripup clasts.

Unit 101 (440.33-443.33): Buff fine-to very fine grained sandstone, moderately dense, fair effervescence.

Unit 100 (427.33-440.33): Shale, covered slope.

Unit 99 (426.33-427.33): Buff silty limestone, dense, medium cross-bedding very good effervescence.

Unit 98 (422.33-426.33): Gray shale, weathers to thin shaly partings, poor effervescence, forms slope.

Unit 97 (420.5-422.33): Gray, fine-to very fine grained sandstone, moderately dense, laminar bedding, fair effervescence, weathers to medium partings.

Unit 96 (413.5-420.5): Gray silty marlstone, weathers medium to thin partings, fair effervescence.

Unit 95 (406.5-413.5): Buff fine-grained sandstone, large wedge cross- bedding, scattered pebble size limonite concretions.

Unit 94 (391.8-406.5): Fine-grained sandstone, small to medium wedge cross-bedding, no effervescence.

Unit 93 (391.5-391.8): Gray shale with iron oxide streaks, very thin shaly partings, no effervescence.

Unit 92 (388.25-391.5): Buff fine-to very fine grained sandstone, lower 7 inches small rounded ripup clasts and detritus and wispy small scale cross-bedding towards top, no effervescence.

Unit 91 (387.5-388.25): Buff shale, friable.

Unit 90 (386.4-387.5): Limy siltstone, dense, very good effervescence.

Unit 89 (375.4-386.4): Gray shale, weathers to thin shaly partings, 18 inches very fine grained sandstone, dense, 1 foot below top, fair effervescence, forms slope.

Unit 88 (365.33-375.4): Light-gray silty marlstone, moderately dense, weathers medium to thin shaly partings, fair effervescence, forms slope.

Unit 87 (364.8-365.33): Light-tan silty limy marlstone, dense, good effervescence.

Unit 86 (363.8-364.8): Gray shale, weathers to thin shaly partings, no effervescence.

Unit 85 (358.8-363.8): Silty marlstone/siltstone, fair effervescence, small scale cross-bedding.

Unit 84 (354.67-358.8): Buff fine-to very fine grained sandstone, large wedge cross-bedding, no effervescence, pebble size limonite concretions at top.

Unit 83 (349.67-354.67): Tan very fine grained sandstone, fair effervescence, horizon of platey noncalcareous features(pelecypod fragments).

Unit 82 (343.67-349.67): Gray marlstone, weathers to medium to thin shaly partings, forms slope.

Unit 81 (342.2-343.67): Buff very fine sandstone, dense, fair effervescence.

Unit 80 (336.1-342.2): Gray silty marlstone, moderately dense, fair effervescence, forms slope.

Unit 79 (333.33-336.1): Buff very fine grained sandstone, flaser bedding, fair to poor effervescence.

Unit 78 (325.33-333.33): Upper half red-brown lower half gray shale, weathers to medium to thin shaly partings, no effervescence, forms slope.

Unit 77 (312.33-325.33): Buff very fine grained sandstone, some small scale cross-bedding, fair effervescence, small scattered limonite concretions throughout.

Unit 76 (307.33-312.33): Buff fine-to very fine grained sandstone, flaser bedding, fair effervescence.

Unit 75 (303.33-307.33): Gray shale, weathers thin shaly partings, fair effervescence, forms slope.

Unit 74 (300.33-303.33): Silty mudstone/limestone, dense, weathers to medium shaly partings, good effervescence.

Unit 73 (291.33-300.33): Gray shale grading to buff silty marlstone, weathers to medium shaly partings, ripple bedding at top 6 inches, fair effervescence, dense.

Unit 72 (286.33-291.33): Buff fine-to very fine grained sandstone, scattered round limonite concreations, fair effervescence.

Unit 71 (283.33-286.33): Buff silty marlstone, weathers medium to thin shaly partings.

Unit 70 (281.4-283.33): Buff fine-to very fine grained sandstone, dense, small scale cross-bedding, good effervescence.

Unit 69 (276.67-281.4): Gray to light-gray marlstone, weathers medium to thin shaly partings, fair effervescence, forms slope.

Unit 68 (275.4-276.67): Light-gray limy marlstone grading into light-brown limestone, dense, good to very good effervescence,

Unit 67 (271.4-275.4): Light-gray marlstone, slightly silty, weathers medium to thin shaly partings, fair effervescence, forms slope.

Unit 66 (270.9-271.4): Light-tan gray siltstone, dense, fair effervescence.

Unit 65 (267.0-270.9): Light-gray shale/marlstone, thin to very thin shaly partings, fair effervescence, forms slope.

Unit 64 (265.5-267.0): Buff siltstone with trace of clay streaks, lower half gray silty marlstone with medium shaly partings, good effervescence, trace of vertebrate fragments.

Unit 63 (259.5-265.5): Red-brown shale, poor effervescence, forms mostly covered slope.

Unit 62 (253.5-259.5): Buff siltstone, trace of clay streaks, flaser bedding, dense, fair effervescence, weathers medium to thin shaly partings towards top.

Unit 61 (249.5-253.5): Red-brown shale, no effervescence, forms mostly covered slope.

Unit 60 (248.75-249.5): Buff siltstone, dense, small ripples, fair effervescence.

Unit 59 (247.4-248.75): Mottled purple-gray shale weathers fine to very fine shaly partings, forms mostly covered slope.

Unit 58 (244.4-247.4): Light-gray to tan marlstone, dense, weathers to medium partings, good effervescence, forms single outcrop.

Unit 57 (235.4-244.4): Gray to light-gray shale, fair effervescence, forms covered slope.

Unit 56 (234.9-235.4): Buff silty marlstone, weathers medium to thin shaly partings, fair effervescence, forms small outcrop.

Unit 55 (232.6-234.9): Mottled purple-gray shale, fair effervescence, weathers to thin shaly partings, forms covered slope.

Unit 54 (231.4-232.6): Tan siltstone with trace of mudstone, dense, fair effervescence, forms small outcrop on slope.

Unit 53 (230.75-231.4): Light-gray nodular shale, good effervescence, forms small outcrop on slope.

Unit 52 (230.1-230.75): Light-brown limestone, concoidal fracture, very dense; very good effervescence, forms small outcrop on slope.

Unit 51 (229.9-230.1): Light-gray shale, weathers medium to thin shaly partings, good effervescence, forms mostly covered slope.

Unit 50 (226.9-229.9): Gray grading to light-gray shale/mudstone, becoming silty towards top, weathers medium to thin shaly partings, good effervescence, forms mostly covered slope.

Unit 49 (223.9-226.9): Red-brown shale/mudstone, no effervescence, forms slope.

Unit 48 (222.9-223.9): Buff fine to very fine siltstone, very dense, fair effervescence.

Unit 47 (218.9-222.9): Tan-gray shale/ mudstone, moderately dense, fair effervescence, forms slope.

Unit 46 (215.9-218.9): Red-brown shale/ marlstone, moderately dense, weathers medium to thin shaly partings, forms slope, poor effervescence.

Unit 45 (212.9-215.9): Light-gray shale/marlstone, moderately dense, weathers to medium shaly partings, forms slope.

Unit 44 (210.9-212.9): Light-gray shale with fine well rounded detritus, weathers to fine shaly partings, very good effervescence, forms slope.

Unit 43 (207.9-210.9): Buff silty marlstone/siltstone, weathers to medium shaly partings, dense, fair effervescence, covered slope.

Unit 42 (204.9-207.9): Buff silty marlstone, dense, weathers to medium shaly partings, good effervescence, covered slope.

Unit 41 (201.9-204.9): Mottled purple-gray shale/marlstone, moderately dense, weathers to medium to very thin shaly partings, forms covered slope.

Unit 40 (198.9-201.9): Tan gray silty marlstone, dense, weathers to medium shaly partings, fair effervescence, partially covered slope.

Unit 39 (195.9-198.9): Gray silty marlstone/mudstone, dense, good effervescence, partially covered slope.

Unit 38 (190.9-195.9): Light-gray shale, moderately dense, no effervescence, partially covered slope.

Unit 37 (180.25-190.9): Buff fine grained sandstone with some small scale cross-bedding, 6 inch light-gray shale at bottom third.

Unit 36 (174.25-180.25): Silty marlstone, weathers to fissle-thin shaly partings, interbedded with fine-to very fine grained sandstone beds.

Unit 35 (173.25-174.25): Buff silty to very fine grained sandstone, sharp transition to fine sandstone, dense, hiatus towards center, sparse fossil fragments.

Unit 34 (171.25-173.25): Gray limy marlstone, very fissle, faint petroliferous odor, good effervescence.

Unit 33 (170.75-171.25): Buff very fine grained sandstone, small scale cross-bedding/ flaser bedding? dense, hiatus/erosional surface at top.

Unit 32 (162.25-170.75): Covered slope, light-gray shale, fair effervescence.

Unit 31 (153.33-162.25): Three (1-foot) tan-gray marlstone beds with top bed (marlstone/limestone) interbedded with gray shale/marlstone beds, very good effervescence on top bed, no effervescence on other beds.

Unit 30 (147.33-153.33): Light-gray mudstone/limestone, dense, good effervescence, grades to very thin shaly partings towards center back to medium shaly partings towards the top, fossil traces and fragments near center, gastropods in vicinity.

Unit 29 (143.33-147.33): Light-to medium-gray mudstone/limestone, with some sparse ostracods and small allochems, weathers to medium shaly partings, very good effervescence with a petroliferous odor.

Unit 28 (140.33-143.33): Four medium ostracodal grainstone to packstone limestone beds, dense, very good effervescence, interbedded with three light-gray marlstone thin beds.

Unit 27 (137.8-140.33): Light-gray shale, weathers to thin shaly partings.

Unit 26 (132.8-137.8): Buff very fine grained sandstone, dense.

Unit 25 (110.8-132.8): Covered slope, light-gray to reddish-brown shale.

Unit 24 (106.8-110.8): Medium-to light-gray silty marlstone, dense, weathers to some medium shaly partings, fair effervescence.

Unit 23 (102.8-106.8): Partially covered slope light-gray marlstone, dense.

Unit 22(100.8-102.8): Partially covered slope, light-gray silty marlstone, good effervescence.

Unit 21 (97.75-100.8): Partially covered slope, light-gray silty marlstone, good effervescence.

Unit 20 (93.75-97.75): Light-gray silty marlstone, weathers to medium shaly partings, dense, fair effervescence.

Unit 19 (88.9-93.75): Buff fine-to very fine-grained sandstone, dense.

Unit 18 (88.33-88.9): Light-gray marlstone, dense, no effervescence.

Unit 17 (82.67-88.33): Buff fine-to very fine grained sandstone, nondistinct bedding.

Unit 16 (74.25-82.67): Covered slope, shale.

Unit 15 (73.25-74.25): Buff siltstone, dense, can't make bedding, no effervescence.

Unit 14 (70.25-73.25): Light greenish-gray marlstone, faint effervescence.

Unit 13 (58.25-70.25): Buff fine-to very fine grained sandstone, wispy or flaser bedding.

Unit 12 (54.25-58.25): Light-gray shale, weathers medium to thin shaly partings.

Unit 11 (50.25-54.25): Covered slope, shale.

Unit 10 (48.0-50.25): Medium-gray marlstone, dense, weathers to medium shaly partings, faint effervescence.

Unit 9 (42.0-48.0): Covered slope, greenish-gray shale, weathers to medium to thin shaly partings, no effervescence.

Unit 8 (38.0-42.0): Light-gray marlstone, dense, weathers to medium shaly partings, fair effervescence.

Unit 7 (37.0-38.0): Grayish-tan marlstone, mostly medium gray, no effervescence.

Unit 6 (34.5-37.0): Medium gray marlstone, dense, no effervescence.

Unit 5 (30.0-34.5): Buff fine-grained sandstone, scattered limonite concretions.

Unit 4 (14.5-30.0): Buff fine-grained sandstone, appears laminar bedding?, scattered limonite concretions upper 3 inches.

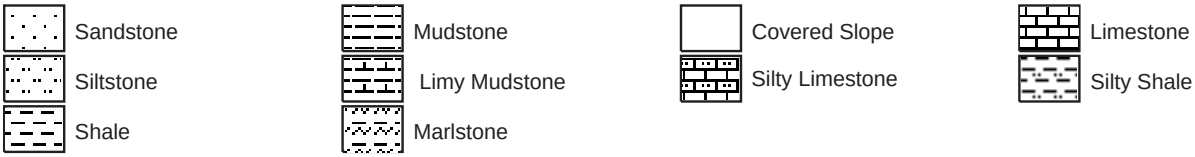
Unit 3 (6.0-14.5): Buff fine-grained sandstone, medium cross-bedding.

Unit 2 (5.5-6.0): Buff fine-grained sandstone, laminar bedding.

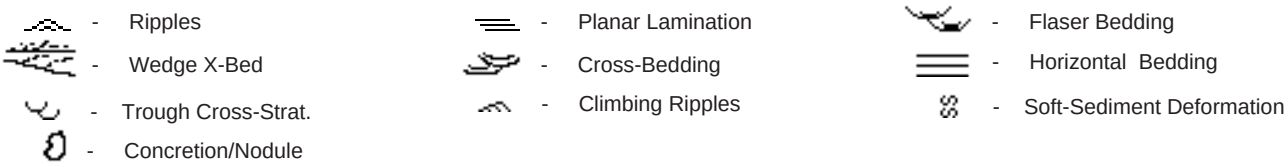
Unit 1 (0-5.5): Buff fine-to very fine grained sandstone, medium cross-bedding.

LEGEND

LITHOLOGY



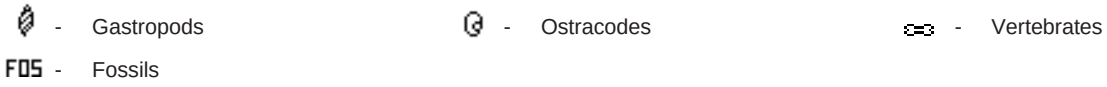
PHYSICAL STRUCTURES



LITHOLOGIC ACCESSORIES

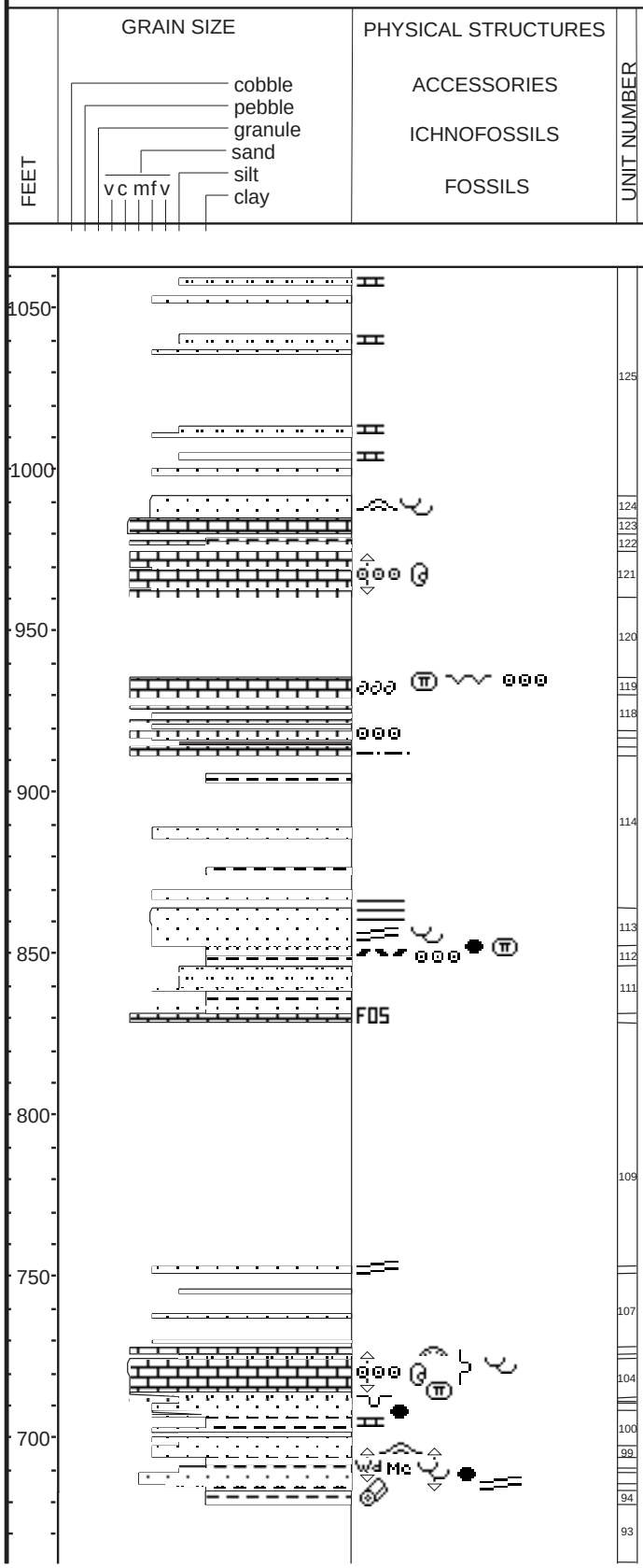
ICHNIFOSSILS

FOSSILS



UGS 3
Trail Canyon

The section begins on the east side of Trail Canyon in the SW1/4SE1/4 and ends in the SW1/4NE1/4 section 34, T. 11 S., R. 14 E., of the Salt Lake Base line and Meridian, Duchesne County, Utah.



Unit Number (measured section thickness [cumulative] in feet - Lithologic description

Unit 125 (992.5-1063): Covered slope, mostly weathered green to greenish-gray shale, some thin (0.5-foot thick) sandstone and calcareous to limy siltstone, weathers orange, coarsening upward.

Unit 124 (985.5-992.5): Sandstone, lower portion trough cross-bedding with some ripples and small scale trough cross-bedding, upper portion increasing ripples.

Unit 123 (980.5-985.5): Grainstone.

Unit 122 (975-980.5): Talus, some green shale and some thin (0.5-foot thick) interbedded grainstone.

Unit 121 (961-975): Grainstone, ostracodal and oolitic, some thin interbedded sandstone, very fine grained, top of unit is ostracodal grainstone.

Unit 120 (936-961): Covered slope.

Unit 119 (930-936): Grainstone, silty base, some shaley limestone in the middle of the unit, abundant fish scales and broken shells, upper portion of unit is oolitic grainstone with green shale mudcracks on top of unit.

Unit 118 (919-930): Covered slope, weathered green shale, some thin sandstone and limestone.

Unit 117 (917.5-919): Grainstone, oolitic, some algal laminations.

Unit 116 (914.5-917.5): Partially covered slope, siltstone, greenish-gray with interbedded thin sandstone.

Unit 115 (911.5-914.5): Limestone, silty, gray weathers orange.

Unit 114 (864.5-911.5): Talus, some interbedded sandstone and shale.

Unit 113 (852.5-864.5): Sandstone, channel form, base contains IFC and fish scales, some small scale trough and low angle parallel cross-bedding, horizontal parallel cross-bedding in upper portion of bed.

Unit 112 (846.5-852.5): Shale, limy, green, grading upward to marlstone/muddy limestone, light-tan, weathers orange, some ooids and thin layers of ripped up algal plates.

Unit 111 (832-846.5): Shale and siltstone, green, with interbedded thin sandstone.

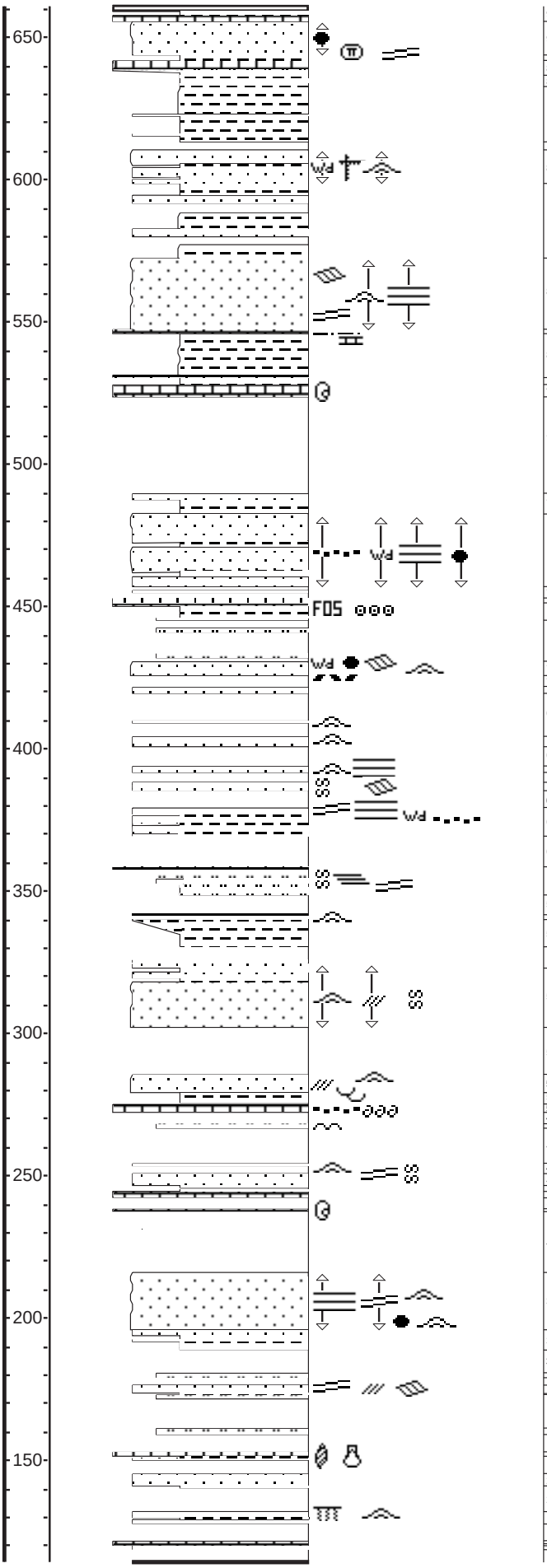
Unit 110 (829-832): Micrite limestone, gray weathers orange, contains fossil hash.

Unit 109 (753.5-829): Covered slope, dominantely weathered green to green-gray shale and siltstone.

Unit 108 (751-753.5): Sandstone, fine-grained, light-brown, subround, some parallel low angle cross-bedding.

Unit 107 (728-751.5): Covered slope, some thin (1-foot thick) sandstone and green siltstone beds.

Unit 106 (726-728): Stromatolitic algal boundstone, upper portion of bed oolitic and ostracodal grainstone.



Unit 105 (724.5-726): Siltstone, green.

Unit 104 (712.5-724.5): Grainstone, limy siltstone to silty limestone at base grading upward to oolitic grainstone with some ostracodes, and ostracodal grainstone with small scale trough cross-bedding in the upper most portion of the bed, fish scales in the lower portion of the bed, numerous thin layers of algal laminations in the middle portion of the bed, and horizontal burrows in the upper portion of the bed.

Unit 103 (711.5-712.5): Grainstone, vertical burrows.

Unit 102 (711-711.5): Siltstone, green.

Unit 101 (708.5-711): Sandstone, fine-grain, subangular to subround, some IFC and fish scales at base.

Unit 100 (698-708.5): Siltstone to shale, green, interbedded with thin sandstone (about 1-foot thick), slightly calcareous, generally sharp base and gradational upper contact.

Unit 99 (694.5-698): Sandstone, woody material, some small scale trough cross-bedding and ripples.

Unit 98 (691.5-694.5): Siltstone and thin green shale.

Unit 97 (689.5-691.5): Siltstone to silty shale, thinly bedded, black, micaceous.

Unit 96 (686.5-689.5): Sandstone, medium-grained, downcutting base, IFC and wood, large scale trough cross-bedding.

Unit 95 (683.5-686.5): Siltstone to very fine grained sandstone with interbedded green shale, small scale trough and low angle parallel cross-bedding, sharp base, top incised by overlying sandstone.

Unit 94 (679.5-683.5): Shale, green with log impressions, replaced with siltstone and grainstone, covered with encrusting algae, long direction of logs N67°E.

Unit 93 (661.5-679.5): Mostly covered weathered green shale.

Unit 92 (655.5-661.5): Grainstone limestone, oolitic, 1-foot thick green shale in middle of unit.

Unit 91 (644-655.5): Sandstone, low angle parallel cross-bedding at base with fish scales and some IFC.

Unit 90 (642-644): Shale, green.

Unit 89 (637-642): Siltstone grading upward to micrite capped with 0.5 feet grainstone.

Unit 88 (633-637): Interbedded gray shale and siltstone.

Unit 87 (613.5-633): Green shale and thin sandstone beds (1 foot).

Unit 86 (610.5-613.5): Covered slope, weathered green shale.

Unit 85 (598.5-610.5): Sandstone, thin bedded with interbedded green shale, some wood material in lower portion, highly rippled, fractures N25°W.

Unit 84 (572.5-598.5): Partially covered, interbedded sandstone and weathered green shale, some red shale.

Unit 83 (547.5-572.5): Sandstone, some low angle parallel-tangential in lower portion of bed, horizontal cross-bedding and ripples, some climbing ripples in upper portion of bed.

Unit 82 (546-547.5): Muddy limestone, silty.

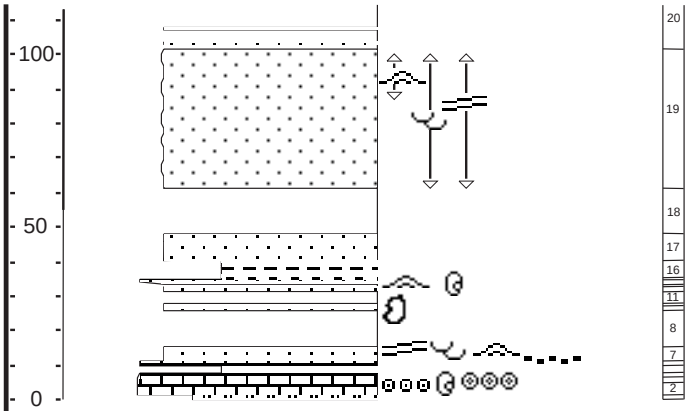
Unit 81 (531-546.5): Micrite limestone (0.5 feet), weathered green shale (11 feet), calcareous green shale grading to limy mudstone (4 feet).

Unit 80 (528-531): Weathered green shale.

Unit 79 (524-528): Grainstone limestone, oolitic, some ostracodes, grading upward to micrite limestone with ooids.

Unit 78 (490-524): Covered, mostly red soil at base and green shale upper portion of unit.

Unit 77 (482.5-490): Green shale (5 feet) and sandstone (2.5 feet).



Unit 76 (457-482.5): Sandstone, fine-grained, subrounded, abundant carbonate grains in lower portion of unit, base irregular with numerous IFC, some green shale clasts many 1 inch long, wood material, low angle parallel-tangential cross-bedding, some thin green shale interbeds dividing the lower unit into sandstone beds that wedge out into green shale northward. Flute casts at base of sandstone, current direction N28°E.

Unit 75 (452-457): Covered some thin sandsotne beds.

Unit 74 (450.5-452): Micrite limestone partially covered at base.

Unit 73 (445-450.5): Siltstone (1 foot) light-brown calcareous, green shale (0.5 feet), limestone and mudstone to the top, light-tan weathers orange, rare ooids, fossil hash on top.

Unit 72 (431-445): Covered weathered green to greenish-gray shale some thin siltstone beds.

Unit 71 (426-431): Sandstone, rippled, some climbing ripples, some carbonate rip up clasts at base of unit, some carbonate IFC and woody material upper portion of unit.

Unit 70 (421.5-426): Covered weathered green shale and thin sandstone beds.

Unit 69 (419.5-421.5): Sandstone, horizontal bedding, sharp upper contact.

Unit 68 (404-419.5): Covered, weathered green shale and some red shale with thin sandstone (0.5 feet thick) highly rippled.

Unit 67 (401-404): Sandstone, irregular lower contact sharp upper contact, intensley rippled.

Unit 66 (394-401): Covered, weathered green shale, possibly some red shale.

Unit 65 (391.5-394): Sandstone, gradational base and sharp upper contact, ripples and some small scale parallel tangential cross-bedding.

Unit 64 (388.5-391.5): Covered, weathered green shale.

Unit 63 (385.5-388.5): Sandstone, gradational base, some wedge shape, and sharp upper contact, some thin siltstone interbeds, climbing ripples and soft-sediment deformation structures in lower portion of unit.

Unit 62 (379.5-385.5): Covered, some thin sandstone beds possibly green shale.

Unit 61 (369.5-379.5): Sandstone, mostly sharp base, some down cutting, abundant wedge shaped beds with interbedded green shale and IFC lags, some with abundant wood material, some parallel-tangential cross-bedding becoming more low angle to horizontal cross-bedded in upper portion of unit.

Unit 60 (358.5-369.5): Covered.

Unit 59 (348.5-358.5): Siltstone to limy siltstone to limestone, lower portion of unit is thin accretary bed interbedded with green shale and siltstone, coarsening upward with grainstone limestone on top. Low angle parallel cross-bedding lower portion of unit horizontal algal laminations and soft-sediment deformation in middle portion of unit.

Unit 58 (342-348.5): Covered slope, weathered green shale possible some red.

Unit 57 (340.5-342): Sandstone, gradational base, sharp top, rippled.

Unit 56 (330.5-340.5): Weathered red shale, more maroon to green shale near top of unit.

Unit 55 (324.5-330.5): Covered, weathered green shale with thin sandstone beds.

Unit 54 (302.5-324.5): Sandstone, intensly rippled with some high angle parallel cross-bedding, middle portion of bed contains soft-sediment deformation structures, upper portion contains interbedded green shale.

Unit 53 (285.5-302.5): Talus, probably green shale and sandstone.

Unit 52 (279-285.5): Sandstone, irregular slightly gradational base, small scale trough cross-beds lower portion, and high angle parallel-tangential cross-bedding, upper 0.5 feet of bed ripples and some feeding traces.

Unit 51 (275-279): Shale, green, partially covered at base.

Unit 50 (272.5-275): Grainstone limestone, small limestone clasts minor fossil shell fragments upper portion of unit.

Unit 49 (268-272.5): Talus.

Unit 48 (267-268): Siltstone, light-brown, calcareous, wave rippled.

Unit 47 (254-267): Covered weathered green and some red shale.

Unit 46 (251-254): Partially covered thin bedded sandstone beds, highly rippled.

Unit 45 (246.5-251): Sandstone, down cutting base, flat top, abundant soft-sediment deformation structures, small scale low angle parallel cross-bedding and ripples upper portion fo bed.

Unit 44 (244.5-246.5): Partially covered base, shaley grading upward to micrite limestone, laterally this unit is cut out by overlying sandstone.

Unit 43 (242.5-244.5): Grainstone limestone.

Unit 42 (238.5-242.5): Talus.

Unit 41 (237.5-238.5): Grainstone limestone with ostracodes.

Unit 40 (216-237.5): Talus, possible weathered red shale.

Unit 39 (196-216): Sandstone, channel form, some thin green shale interbeds, some low angle parallel to horizontal cross-bedding, some ripples, intraformational conglomerate in lower portion of bed.

Unit 38 (189-196): Shale, green, with interbedded sandstone, increasing sandstone upward, sandstone is wedge shaped laterally equivalent to thick (6-foot) channel form bed.

Unit 37 (181-189): Talus.

Unit 36 (179.5-181): Siltstone, light-brown, very calcareous.

Unit 35 (176.5-179.5): Covered slope, weathered green and red shale.

Unit 34 (173.5-176.5): Sandstone, fine-grained, brown, angular to subangular, light-brown, some low angle parallel cross-bedding, occasional high angle parallel cross-bedding, climbing ripples in middle portion of bed. Overlain by 3 feet grading from sandstone to mostly oolitic and ostracodal grainstone. Middle of bed IFC lithoclasts composed of ooids, ostracods, some chert and limestone fragments. Top of bed horizontally laminated.

Unit 33 (173-173.5): Shale, green.

Unit 32 (161-173): Talus, some weathered green siltstone near top of unit.

Unit 31 (159.5-161): Siltstone, green to light-brown, calcareous.

Unit 30 (153-159.5): Covered slope, some weathered green shale.

Unit 29 (151.5-153): Grainstone limestone, some pelecypods and gastropods in lower portion, generally coarsening upward sequence.

Unit 28 (145-151.5): Covered slope, some thin sandstone beds and thin grayish-brown shale near top of unit.

Unit 27 (141-145): Sandstone, rippled.

Unit 26 (132-141): Covered slope, weathered green shale near top of unit.

Unit 25 (128-132): Sandstone, small coarsening upward sequence, interbedded shale and siltstone, rippled, synaeresis cracks.

Unit 24 (123.5-128): Covered.

Unit 23 (121-123.5): Grainstone limestone, oolitic to pisolitic, most coated grains 1.0 to 0.5 mm, some 2.0 mm; overlain by 1.5 feet of limy mudstone.

Unit 22 (120-121): Micrite limestone.

Unit 21 (119-120): Sandstone, very fine grained, very calcareous.

Unit 20 (101.3-119): Covered slope, weathered green shale with thin (1-foot thick) sandstone beds every 4 to 5 feet.

Unit 19 (61.3-101.3): Sandstone, fine-grained, irregular base, low angle parallel and small scale trough cross-bedding, large soft-sediment structures, dominately rippled upper portion.

Unit 18 (48.3-61.3): Covered slope, weathered green, purple to red shale.

Unit 17 (40.3-48.3): Sandstone, some thin green shale interbeds 1-2 inches, bed has flat base.

Unit 16 (35.3-40.3): Interbedded green shale and siltstone with some thin carbonate mudstone, overall coarsing upward sequence.

Unit 15 (35.1-35.3): Oil shale.

Unit 14 (33.6-35.1): Sandstone, ostracodes at base, highly rippled, grades up to grainstone on top.

Unit 13 (32.6-33.6): Covered slope.

Unit 12 (31.6-32.6): Sandstone.

Unit 11 (28.1-31.6): Covered slope.

Unit 10 (27.6-28.1): Sandstone, fine-grained, slightly calcareous.

Unit 9 (25.6-27.6): Sandstone, very fine grained to siltstone, some iron concretations in lower half of unit.

Unit 8 (15.6-25.6): Covered slope, probably weathered green shale.

Unit 7 (11.1-15.6): Sandstone, abundant carbonate material in basal 1 foot, low angle tabular-tangential and small scale trough cross-bedding with ripples on top.

Unit 6 (10-11.1): Limestone, algal stromatolite with 2-inch thick green shale on top.

Unit 5 (8-10): Covered slope, weathered green to gray shale at top of unit.

Unit 4 (7-8): Grainstone limestone, pisolitic.

Unit 3 (5-7): Micrite limestone.

Unit 2 (1.5-5): Grainstone limestone, ostracodal, oolitic.

Unit 1 (0-1.5): Siltstone, greenish-gray to tan, very calcareous.

LEGEND

LITHOLOGY

CONTACTS

Sharp

PHYSICAL STRUCTURES

- Climbing Ripples
- Low Angle Tabular Bedding
- Fractures
- Intraformational Conglomerate (IFC)
- Mudcracks
- Trough Cross-Strat.
- Planar Lamination
- Synaeresis Cracks
- Soft-Sediment Deformation
- Concretion/Nodule
- Ripples
- High Angle Tabular Bedding
- Horizontal Bedded
- Wave Ripples

LITHOLOGIC ACCESSORIES

- Calcareous
- Wood Fragments
- Silty
- Rip-Up Clasts
- Shell Fragments
- Pisolites
- Clasts
- Oolites
- Log Impressions

ICHNOFOSSILS

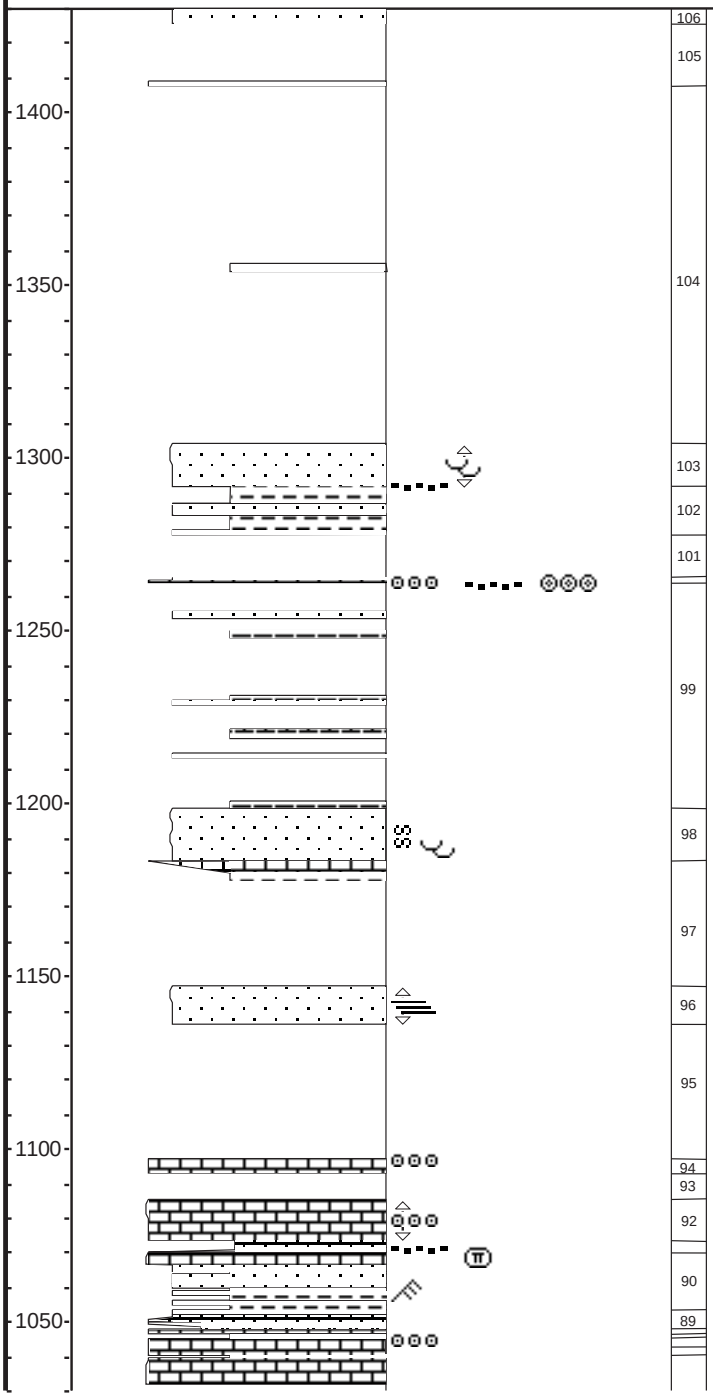
- Vertical Burrows
- Horizontal Burrows

FOSSILS

- Fish Scales
- Ostracodes
- Gastropods
- FOS - Fossils
- Pelecypods
- Algal Stromatolite

UGS 4
Currant Canyon

The section begins on the east side of Currant Canyon (start directly up from gas well) in the NW1/4SE1/4 and ends in the SW1/4NE1/4 section 36, T. 11 S., R. 14 E., of the Salt Lake Base line and Meridian, Duchesne County, Utah.



Unit Number (measured section thickness [cumulative] in feet) - Lithologic description

Unit 106 (1426-1430): Sandstone, trough cross-bedding, blocks from lower unit came from here. End of ridge. Unit is a bench former.

Unit 105 (1408-1426): Beginning of next ridge, basal foot is limy siltstone, light-gray, remainder of unit is covered slope. Five feet up from base rest some large sandstone blocks.

Unit 104 (1304-1408): Covered ridgeline. About middle of unit is the "Mahogany Oil Shale".

Unit 103 (1292-1304): Sandstone, abundant clay and limestone clasts in base, oil saturated, trough bedding, base highly oil impregnated.

Unit 102 (1278-1292): Interbedded green shale and thin sandstone.

Unit 101 (1265.5-1278): Covered slope, weathered green to gray siltstone.

Unit 100 (1264-1265.5): Bottom foot is oolitic to pisolitic grainstone with some large (0.5 to 1 inch) clasts, overlain by 6 inches of fine grained sandstone.

Unit 99 (1199-1264): Mostly covered slope, weathered green shale, some limy mudstone and thins sandstone beds.

Unit 98 (1183.5-1199): Sandstone, minor troughs in lower half, some soft-sediment deformation.

Unit 97 (1147.5-1183.5): Mostly covered slope, weathered green shale. Green shale grades up to muddy limestone in upper 5 feet.

Unit 96 (1136-1147.5): Sandstone, planar bedding.

Unit 95 (1097.5-1136): Covered slope.

Unit 94 (1093-1097.5): Oolitic limestone.

Unit 93 (1085.5-1093): Covered slope.

Unit 92 (1073.5-1085.5): Limestone, dense, partly oolitic.

Unit 91 (1070-1073.5): Calcareous siltstone with abundant clasts grading up to silty limestone, thinly laminated.

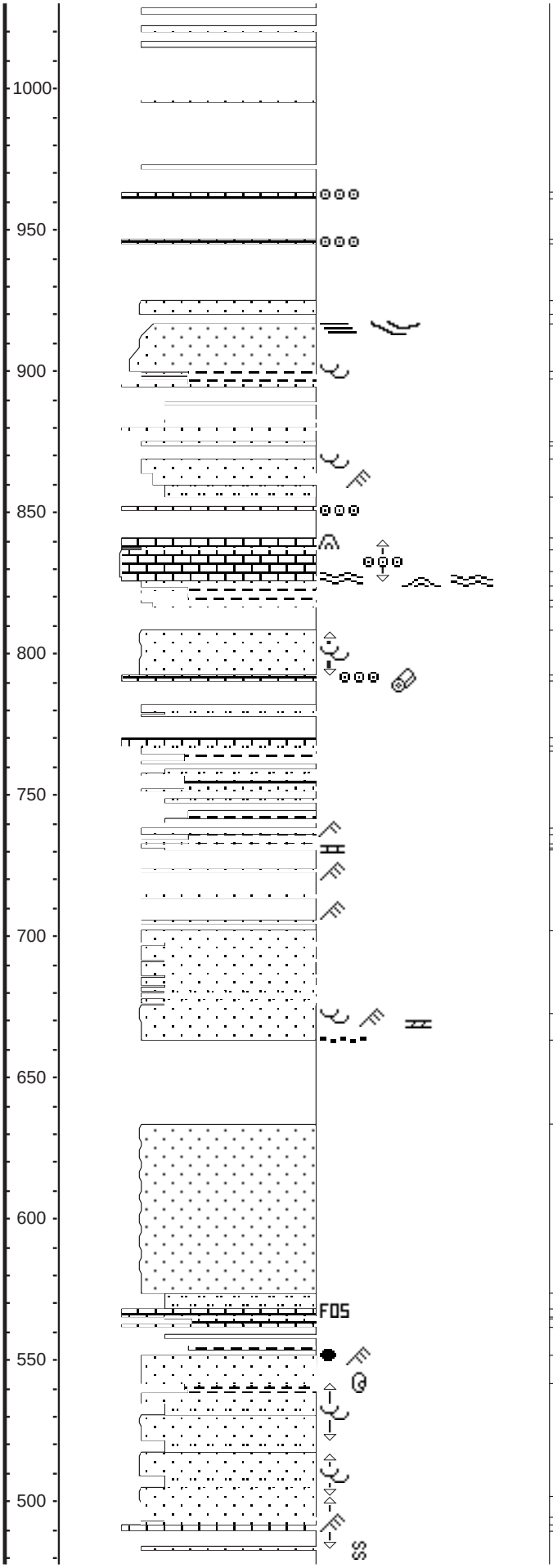
Unit 90 (1053-1070): Interbedded green shale and sandstone, sandstone beds thickening towards top, sandstone beds have flat bases, mildly current rippled towards top of beds. Top 3 feet micritic limestone, fossiliferous, fish scales and bone fragments.

Unit 89 (1048-1053): Green siltstone grading up to micritic limestone, fossiliferous. Unit capped with sandstone, calcareous, with ostracodes, highly trough bedded.

Unit 88 (1046.5-1048): Oolitic grainstone.

Unit 87 (1045.5-1046.5): Green shale.

Unit 86 (1043.5-1045.5): Oolitic limestone, grainstone.



Unit 85 (1040.5-1043.5): Limestone, pillar type algal boundstone.

Unit 84 (963.5-1040.5): Mostly covered slope, some green siltstone and shale, some thin 6-12 inch sandstone beds, number of sandstone beds increases towards top. Top 8.5 feet includes 6.5 feet of muddy limestone to limy mudstone, dark-gray to dark-green with thin green mudstone interbeds, weathers orange, which is overlain by 1 foot of micritic limestone with faint algal laminations at base overlain by 1 foot of green shale.

Unit 83 (961.5-963.5): Oolitic limestone, algal laminations on top.

Unit 82 (946.5-961.5): Covered slope, weathered green shale.

Unit 81 (945-946.5): Limestone, oolitic, oil stained, weathers orange.

Unit 80 (925-945): Covered slope, weathered gray to green shales.

Unit 79 (920-925): Sandstone.

Unit 78 (917-920): Covered slope.

Unit 77 (900-917): Sandstone, channel form, base medium-grained, some rip-up clasts, large scale troughs at base, unit fines upward to very fine grained at top, large low angle trough to planar bedding on top.

Unit 76 (897-900): Interbedded thin sandstone and green shale, unit cut by overlying massive sandstone.

Unit 75 (875-897): Mostly covered slope, some thin 6 inch lenses of gray siltstone, oolitic limestone to silty limestone. Top 2 feet is limy green shale underlain by 6 inches of micritic limestone, fossiliferous, weathers orange.

Unit 74 (874-875): Sandstone with orange carbonate grains.

Unti 73 (869-874): Covered slope.

Unit 72 (856-869): Sandstone, three beds coarsening up from siltstone to sandstone, current ripples throughout, some large low angle troughs in upper unit, oil saturated.

Unit 71 (841-856): Covered slope, 10 feet up from base 1 foot of oolitic limestone.

Unit 70 (837-841): Lower half flaggy sandstone grading up to oolitic grainstone. Upper half dense oolitic grainstone, some minor algal stromatolites.

Unit 69 (829-837): Massive oolitic grainstone, one block on top filled with bone fragments, prominant shelf former.

Unit 68 (824.5-829): Sandstone at base grading up to thin interbedded sandstone with lenses of oolitic grainstone, wavy to large ripples, grading up to oolitic grainstone.

Unit 67 (818.5-824.5): Thin interbedded sandstone and green shale.

Unit 66 (816.5-818.5): Sandstone, very fine grained, light-gray to light-brown, top 6 inches silty limestone to limy siltstone.

Unit 65 (808.5-816.5): Mostly covered, weathered green shale.

Unit 64 (792.5-808.5): Sandstone, gray to dark-gray, trough cross-bedding.

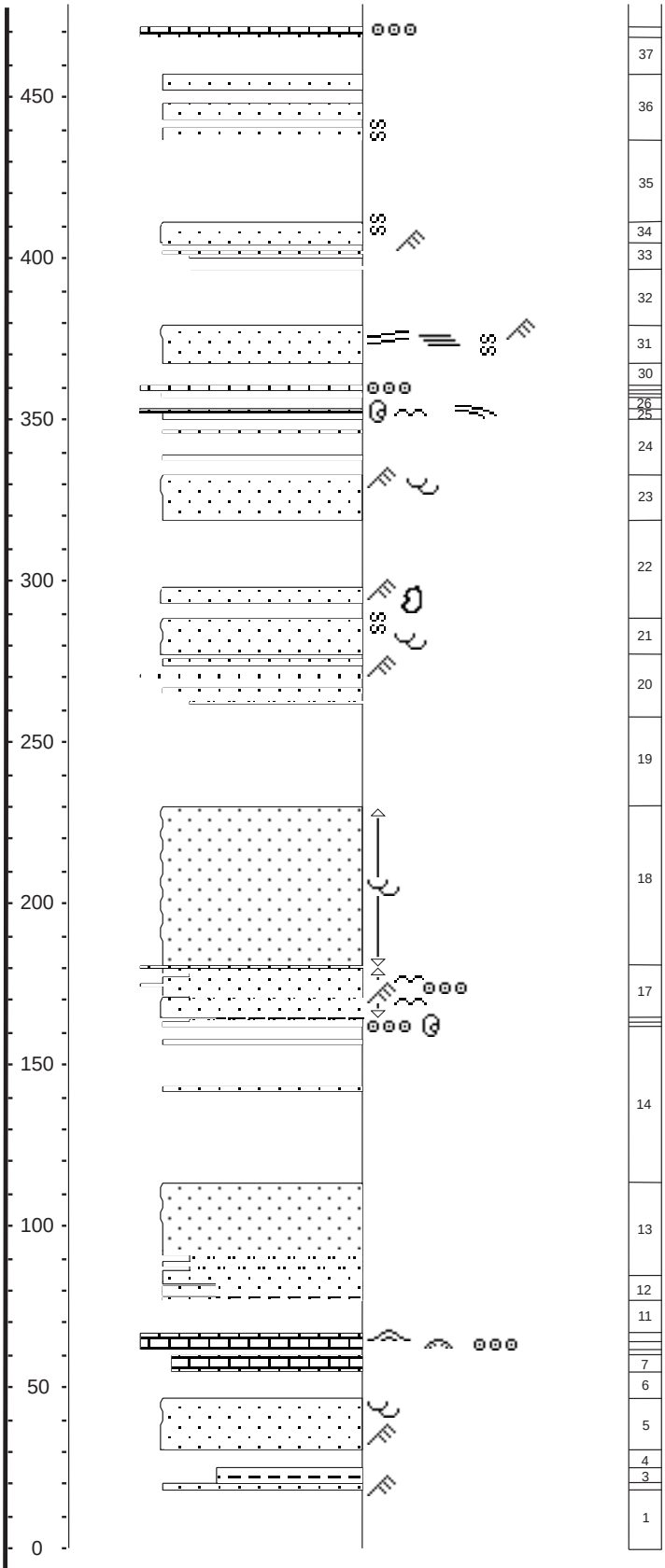
Unit 63 (790.5-792.5): Sandy carbonate, oolitic, several log impressions at base (3 feet in length and 1 foot in diameter) replaced with grainstone and siltstone encrusted with algae.

Unit 62 (770.5-790.5): Mostly covered, weathered green shale, 4 feet of sandstone in middle of unit, lensy with thin interbedded siltstone.

Unit 61 (767.5-770.5): Limestone, grainstone, ostracodes, weathers orange. Prominant marker.

Unit 60 (765-767.5): Sandstone, interbedded siltstone.

Unit 59 (738.5-765): Partially covered, interbedded green shale and thin sandstone and siltstone beds. Some thin (1-6 inch) oolitic limestone (grainstone) halfway up unit. One and a half feet above limestone is another limestone that is 1 foot thick.



Unit 58 (736.5-738.5): Sandstone, rippled.

Unit 57 (732.5-736.5): Weathered green shale, with thin 2-6 inch sandstone beds.

Unit 56 (731.5-732.5): Sandstone.

Unit 55 (730.5-731.5): Green siltstone, calcareous.

Unit 54 (702.5-730.5): Covered slope, weathered green shale, few thin sandstone beds (6-12 inches), current ripples.

Unit 53 (673.5-702.5): Interbedded sandstone and thin siltstone beds, sandstone thickening towards top of unit.

Unit 52 (663.5-673.5): Sandstone, irregular base, some clay conglomerate at base, trough cross-bedding and current ripples near top, several thin 1-inch dolomitic conglomerate lenses.

Unit 51 (633.5-663.5): Mostly covered slope, weathered green shale and thin sandstone.

Unit 50 (573.5-633.5): Massive sandstone bed. Mega ripples at base, dominately large trough cross-bedding, accretionary beds, some current ripples near top. Some interbedded green shale, some oil staining.

Unit 49 (568.5-573.5): Interbedded sandstone and siltstone.

Unit 48 (565.5-568.5): Limestone, micritic, gray to dark-gray, fossiliferous, 4-inch thick bed of limy shale in middle of unit.

Unit 47 (564.5-565.5): Green siltstone.

Unit 46 (562-564.5): Basal 4 inches ostracodal grainstone overlain by silty limestone, tan to light-gray, weathers orange.

Unit 45 (552-562): Covered slope, green shale and siltstone.

Unit 44 (542-552): Sandstone, some troughs at base, ostracodes in cross-beds at base, upper part current rippled, some intraformaional conglomerate lenses.

Unit 43 (502-542): Interbedded sandstone and green siltstone, large troughs, laterally equivalent to massive sandstone, top 3 feet interbedded limy siltstone to green shale, siltstone weathers yellow to yellowish brown.

Unit 42 (495-502): Sandstone, massive, abundant current ripples.

Unit 41 (492-495): Mostly sandstone, current ripples, some interbedded green siltstones.

Unit 40 (490-492): Limestone, micritic, weathers yellow, sharp upper contact in most places, slightly cutting in a few places.

Unit 39 (472-490): Mostly covered slope, 1-foot-thick sandstone bed at 483 feet, tool marks at base, current ripples, soft-sediment deformation at top.

Unit 38 (469-472): Basal foot is ostracodal grainstone with slight oil staining, overlain by 6 inches of covered slope, which is overlain by 1.5 feet of micritic limestone capped with thin ostracodal oolitic grainstone.

Unit 37 (457-469): Covered slope, probably green shale.

Unit 36 (437-457): Partially covered, mostly sandstone, large soft-sediment deformation in lower 3 feet.

Unit 35 (411.5-437: Covered slope, lower slope slightly red.

Unit 34 (404.5-411.5): Sandstone, lower 3 feet some thin green siltstone beds and current ripples, some soft-sediment deformation near top.

Unit 33 (396.5-404.5): Mostly covered slope, some thin green siltstone and sandstone beds. Laterally, unit almost entirely sandstone, highly current rippled.

Unit 32 (379.5-396.5): Covered slope.

Unit 31 (367.5-379.5): Sandstone, lower 3 feet abundant soft-sediment deformation, upper 7 feet planar to low angle bedding, abundant current rips and soft-sediment deformation.

Unit 30 (360.5-367.5): Covered slope.

Unit 29 (359.5-360.5): Oolitic ostracodal grainstone.

Unit 28 (359-359.5): Covered slope.

Unit 27 (358-359): Sandstone, capped with thin oolitic limestone.

Unit 26 (353-358): Covered slope.

Unit 25 (350-353): Sandstone, top is hummocky and wave rippled, cross-beds are filled with ostracodes, top 4 inches is ostracodal grainstone.

Unit 24 (333-350): Covered slope, a few thin sandstone beds that are ends of lateral accretions, about 50 feet to the east the sandstone beds thicken and form a continuous sandstone bed with unit below.

Unit 23 (319-333): Sandstone, base strongly down cutting, some accretionary at base, upper part highly trough bedded and current rippled.

Unit 22 (288-319): Mostly covered slope, at 293 feet there is a 5-foot-thick bed of sandstone, highly current rippled, at 294.5 feet there is a layer of large concretions (12-18 inches in diameter[long axis]), 5 feet or more apart.

Unit 21 (277-288): Sandstone, some troughs in lower half, soft-sediment deformation in lower half.

Unit 20 (257-277): Partially covered slope, interbedded sandstone and green siltstone, sandstone beds 1-2 feet thick, some current ripples, bioturbated, at 270 feet there is a 6-inch bed of oolitic limestone.

Unit 19 (230-257): Covered slope.

Unit 18 (180.5-230): Sandstone, large troughs throughout unit.

Unit 17 (164.5-180.5): Sandstone with some green siltstone beds, conglomerate layers at base of sandstone beds were they cut into the siltstone beds, 7 feet up there is a 3-foot-thick bed of oolitic sandstone to limy sandstone topped with micritic limestone, some thin limestone near top, round to oval clasts.

Unit 16 (163-164.5): Green siltstone and mudstone.

Unit 15 (162-163): Sandstone overlying green siltstone in unit below, top 2-4 inches is conglomeritic with some ooids and rare ostracodes.

Unit 14 (113-162): Mostly covered slope, float in lower half mostly red, float in upper half is gray, two thin (6-12 inches) sandstone beds in upper half.

Unit 13 (85-113): Bottom 5 feet mostly sandstone with some green siltstone beds, upper 15 feet massive sandstone.

Unit 12 (77-85): Sandstone, interbedded green shale and siltstone, mostly sandstone, overlain by large massive sandstone.

Unit 11 (67-77): Mostly covered, some thin sandstone and green siltstone beds.

Unit 10 (64-67): Micritic limestone, gray, weathers orange, rippled on top.

Unit 9 (62-64): Limestone, gray, capped with algal stromatolites, some ooids present.

Unit 8 (60-62): Covered slope.

Unit 7 (55-60): Mostly ostracodal grainstone with 1 foot of oolitic limestone, rippled, possible algal.

Unit 6 (47-55): Partially covered, interbedded green shale, siltstone, and sandstone.

Unit 5 (31-47): Sandstone, current ripples at base upward to large trough cross-beds.

Unit 4 (25-31): Covered slope.

Unit 3 (20-25): Weathered red and green shale.

Unit 2 (18-20): Sandstone, current ripples.

Unit 1 (0-18): Mostly covered slope, some thin siltstones and shales.

LEGEND

LITHOLOGY

- Sandstone
- Siltstone
- Shale
- Mudstone
- Covered Slope
- Limy Siltstone
- Ostracodal Grainstone
- Limestone
- Silty Limestone
- Limey Shale

PHYSICAL STRUCTURES

- Trough Cross-Strat.
- Low Angle Tabular Bedding
- Low Angle Trough Cross Sets
- Current Ripples
- Concretion/Nodule
- Ripples
- Wavy Laminations
- Soft Sediment Deformation
- Wave Ripples
- Planar Lamination
- Hummocky Cross-Strat.
- Algal Stromatolites
- Intraformational Conglomerate (IFC)

LITHOLOGIC ACCESSORIES

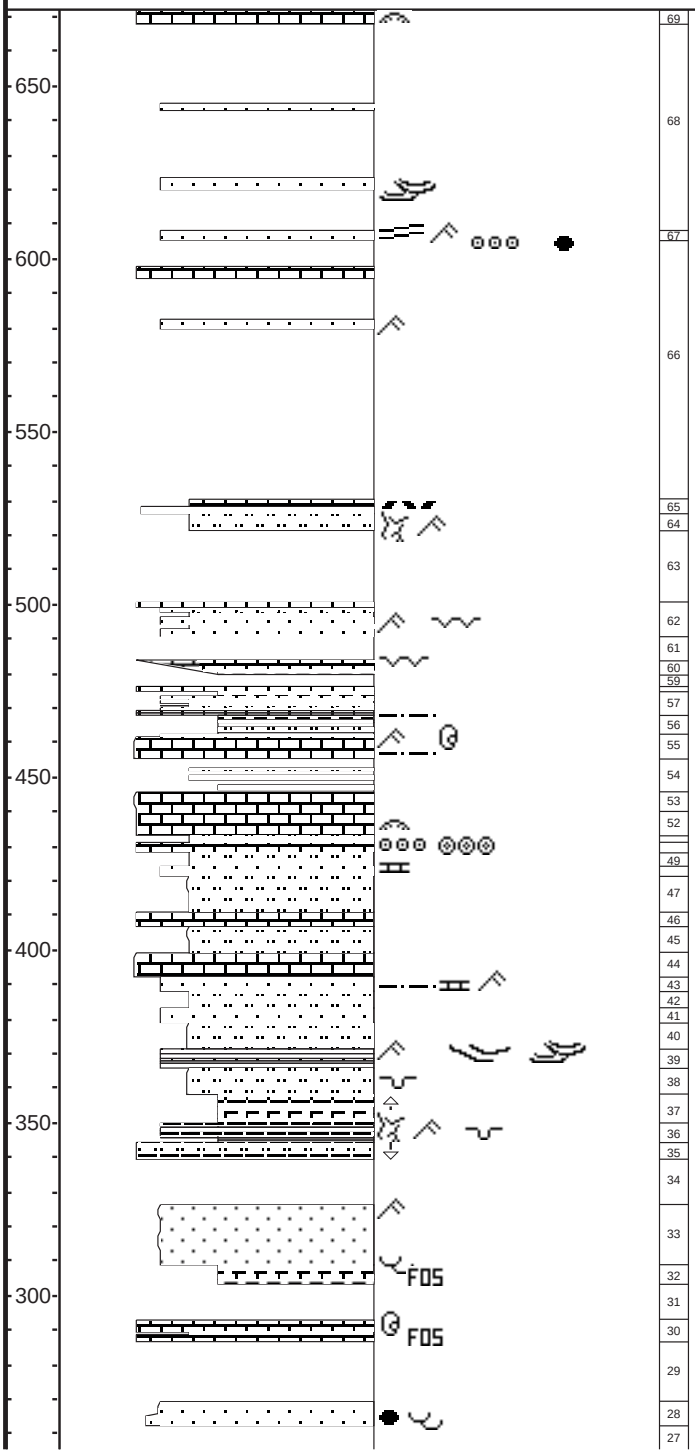
- Calcareous
- Oolites
- Dolomitic
- Pisolites
- Clasts
- Log Impressions

FOSSILS

- Algal Stromatolite
- Fossils
- Fish Scales
- Ostracodes

UGS 5
Rock House Canyon

The section begins and ends in the S1/2 section 24, T. 12 S., R. 17 E., of the Salt Lake Base line and Meridian, Duchesne County, Utah.



Unit number (measured section thickness [cumulative] in feet) - Lithologic description

Unit 69 (668-672): Limestone, algal stromatolites.

Unit 68 (608-668): Mostly covered. At 12 feet above base 3 foot sandstone bed, cross-bedded, very fine grained; at 35 feet above base 1-foot thick sandstone beds.

Unit 67 (605-608): Sandstone, some IFC at base, coated oolites, mostly rippled, tabular cross beds.

Unit 66 (530-605): Covered slope. Fifty feet above base thin rippled sandstone; 65 feet above base thin bedded micrite.

Unit 65 (526-530): Lower half algal to fossil hash with rip-up clasts, upper half micrite.

Unit 64 (521-526): Light-green siltstone, bioturbated, coarsening toward top, some ripples.

Unit 63 (500.5-521): Covered slope.

Unit 62 (490.5-500.5): Interbedded green siltstone and sandstone, coarsening upward, ripples, some mudcracks, grading up to limy siltstone to limy sandstone, topped by micrite-silty muddy limestone.

Unit 61 (483.5-490.5): Partially covered slope, weathered green shale and siltstone.

Unit 60 (479.5-483.5): Shale to siltstone, coarsening upward, capped by 1.5 feet micrite, algal laminated, 2 feet grainstone with mudcracks on top, porous, possible bitumen filled pores in upper two thirds unit. (waypoint 10)

Unit 59 (476.5-479.5): Covered slope.

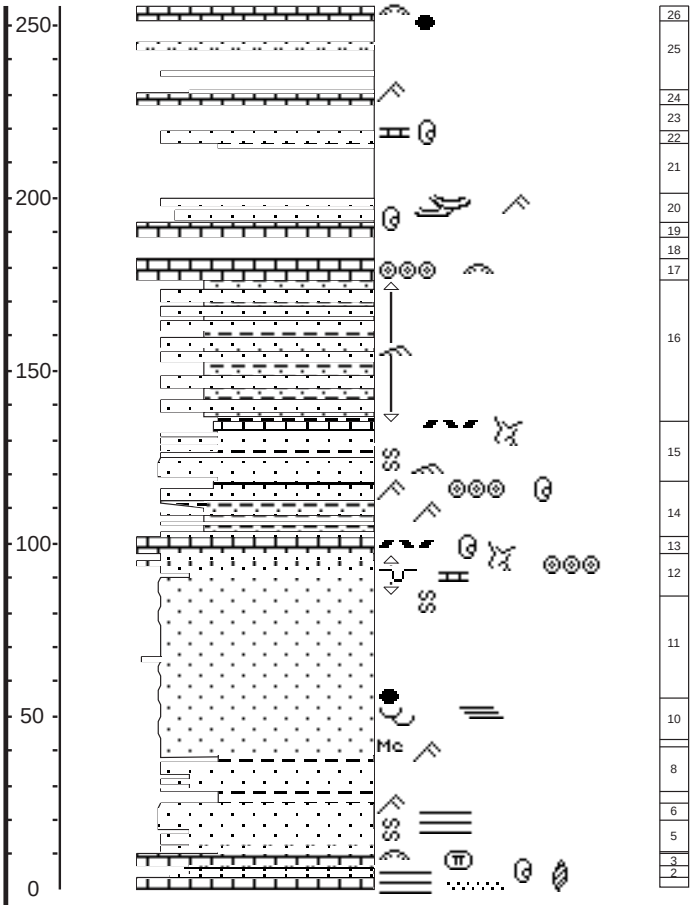
Unit 58 (474.5-476.5): Dense oolitic grainstone, weathers white, structureless.

Unit 57 (467.5-474.5): Thin interbedded mottled siltstone to sandstone, grading upward, at base mostly grainstone to silty grainstone, upper thin beds limy mudstone to coarse-grained siltstone.

Unit 56 (462.5-467.5): Green shale and siltstone.

Unit 55 (455.5-462.5): Grainstone, ostracodes, basal unit silty micrite to grainstone to silty grainstone to 1 foot of sandstone at top, some algal hash, some ripples.

Unit 54 (445.5-455.5): Mostly covered slope, weathered green shale and siltstone.



Unit 53 (440-445.5): Limestone.

Unit 52 (433-440): Limestone, algal heads.

Unit 51 (431-433): Siltstone.

Unit 50 (428-431): Limestone, oolitic pisolitic, packstone to grainstone.

Unit 49 (424-428): Siltstone.

Unit 48 (421-424): Sandstone, very fine grained, calcareous, hematite cement.

Unit 47 (411-421): Siltstone, gray-green, very fine lamination.

Unit 46 (407-411): Limestone.

Unit 45 (399-407): Siltstone, very fine laminated.

Unit 44 (392-399): Grainstone, stromatolitic.

Unit 43 (388-392): Sandstone, very fine grained, ripple laminated, silty, calcareous.

Unit 42 (383-388): Siltstone.

Unit 41 (379-383): Sandstone very fine grained.

Unit 40 (371-379): Siltstone.

Unit 39 (366-371): Sandstone, very fine grained, beds 1-2 feet, rippled, low-angle trough to cross-beds.

Unit 38 (358-366): Siltstone, light-gray to green, mottled, burrowed.

Unit 37 (349.5-358): Green to gray-green mudstone and shale, thin 1-2 inch grainstone beds, bioturbated. (waypoint 8)

Unit 36 (344.5-349.5): Thin interbedded sandstone, shale and siltstone, some vertical burrows, some thin algal laminataions, minor ripples, overall coarsening upward.

Unit 35 (339.5-344.5): Green (some red), silty, bioturbated.

Unit 34 (326.5-339.5): Covered slope.

Unit 33 (308.5-326.5): Sandstone, light-gray, fine-grained, subround, base large scale trough cross-bedding, ripples at top.

Unit 32 (303.5-308.5): Green shale, some highly fossiliferous limestone.

Unit 31 (292.5-303.5): Covered slope.

Unit 30 (286.5-292.5): Lower part fossiliferous micrite, 6 inches of siltstone, ostracodal grainstone, thin bedded toward top. (waypoint 7)

Unit 29 (269-286.5): Covered slope.

Unit 28 (262-269): Sandstone, trough cross-beds lower part, IFC channel lag, medium-to fine-grained, fining upward.

Unit 27 (255-262): Covered slope.

Unit 26 (251-255): Grainstone, abundant IFC at base, grading upward to micrite, top is algal stromatolite.

Unit 25 (231-251): Covered slope, some thin sandstone beds; 4 feet from base fine-grained sandstone, 12 feet from base a 1.5-foot thick flaggy limy siltstone with thin micrite at top.

Unit 24 (227-231): Ostracodal grainstone, overlain by algal, top with rippled siltstone algal laminations on ripples.

Unit 23 (219.5-227): Covered slope.

Unit 22 (215.5-219.5): Sandstone, very fine grain, calcareous, ostracodal at top.

Unit 21 (201.5-215.5): Covered slope, some green shale near top.

Unit 20 (192.5-201.5): Sandstone, partially covered slope, ostracodal, very well cemented, very fine grain, well sorted, subangular, few cross-beds, contorted, few ripples, coarsening upward.

Unit 19 (188.5-192.5): Ostracodal grainstone, some quartz grains, well cemented, algal mats.

Unit 18 (182.5-188.5): Covered slope.

Unit 17 (176.5-182.5): Limestone, pisolitic, topped with algae, some fine-grained sandstone layers, coated grains, stromatolitic algal heads.

Unit 16 (135.5-176.5): One foot green shale at base, thin interbeded green silty shale and very fine grain sandstone, climbing ripples (possible overbank to crevasse splays) up to 2-foot thick sandstone beds, up to 1-foot thick shale beds, occasional channel form beds about 10 feet wide.

Unit 15 117.5-135.5): 1.5 feet shale overlain by sandstone, abundant climbing ripples, top of sandstone abundant soft-sediment deformation (possible seismic), overlain by green shale, thin channel sandstone, interbedded continuious sandstone beds (6 inches) increasing upward, mudstone highly bioturbated. 8 feet of interbeddded sandstone and green mudstone, 3 feet of grainstone, algal rip-ups at top.

Unit 14 (103-117.5): (Flooding Surface) Silty shale, coarsening upward, some thin (1 inch) sandstone beds, some hummocks, some ripples, coarsening upward to very fine grained sandstone intensly rippled, top 1.5 feet coated ostracodal grainstone with a few pisolites.

Unit 13 (97-103): Grainstone with quartz to ostracodal sandstone on top, abundant rip-ups and algae.

Unit 12 (85-97): Sandstone, upper 2 feet highly bioturbated, vertical burrows, overlying beds graded calcareous siltstone with ostracodes to ostracodal limestone, grading upward to grainstone, top of unit algal, some pisolites, coarse grains, thin encrusting algae.

Unit 11 (55-85): Multi-story channel complex, sandstone, numerous IFC at channel base. One thin lense of abundant gar scales, bone, algal fragments, possible transgressive lag?, discontinuious, cut out by overlying channels. Upper 5 feet abundant dewatering fractures and some mudstone concretion.

Unit 10 (43-55): Sandstone, fine-grained black rock fragments, upward-dipping lateral sets, becoming planar upward, some troughs, abundant gar scales.

Unit 9 (41-43): Sandstone very fine grained, micaceous, light-gray, subround, well sorted, swaley bottom, erosional base cutting units underlying muddy siltstone.

Unit 8 (28-41): Sandstone, base is lenticular, 1-2 foot thick interbedded paper shale and siltstone, gray to orange, some ripples in siltstone.

Unit 7 (25-28): Gray to maroon shale.

Unit 6 (20-25): Sandstone, fine-grained, some ripples at very top of unit, thin bedded in upper portion.

Unit 5 (11-20): Sandstone, channel form very fine to fine-grained, interbedded with 1-2 foot thick siltstone units, some soft-sediment deformation, horizontal bedding near top.

Unit 4 (10-11): Gray to green shale.

Unit 3 (7-10): Micrite with algal stromatolites interbedded, prominent at top of unit, orange to tan, some gar fish scales.

Unit 2 (3-7): Gray to greenish gray siltstone with small interbeds (0.4-0.5 ft) of packstone to grainstone with ostracodes and a few gastropods.

Unit 1 (0-3): Base covered, ostracodal grainstone with quartz sand (fine-grained) stringers, weathers tan to orange to gray, thin horizontal beds.

LEGEND

LITHOLOGY

PHYSICAL STRUCTURES

- Ripple Drift Lamination/ Climbing Ripples
- Low Angle Tabular Bedding
- Horizontal Bedded
- Intraformational Conglomerate (IFC)
- Trough Cross-Strat.
- Mud-cracks
- Cross-Bedding
- Ripples
- Planar Lamination
- Low Angle Trough Cross Sets
- Soft-Sediment Deformation

LITHOLOGIC ACCESSORIES

- Sand Lamina
- Micaceous
- Silty
- Calcareous
- Oolites
- Rip-Up Clasts
- Pisolites

ICHNOFOSSILS

- Unidentified Bioturbation
- Vertical Burrows

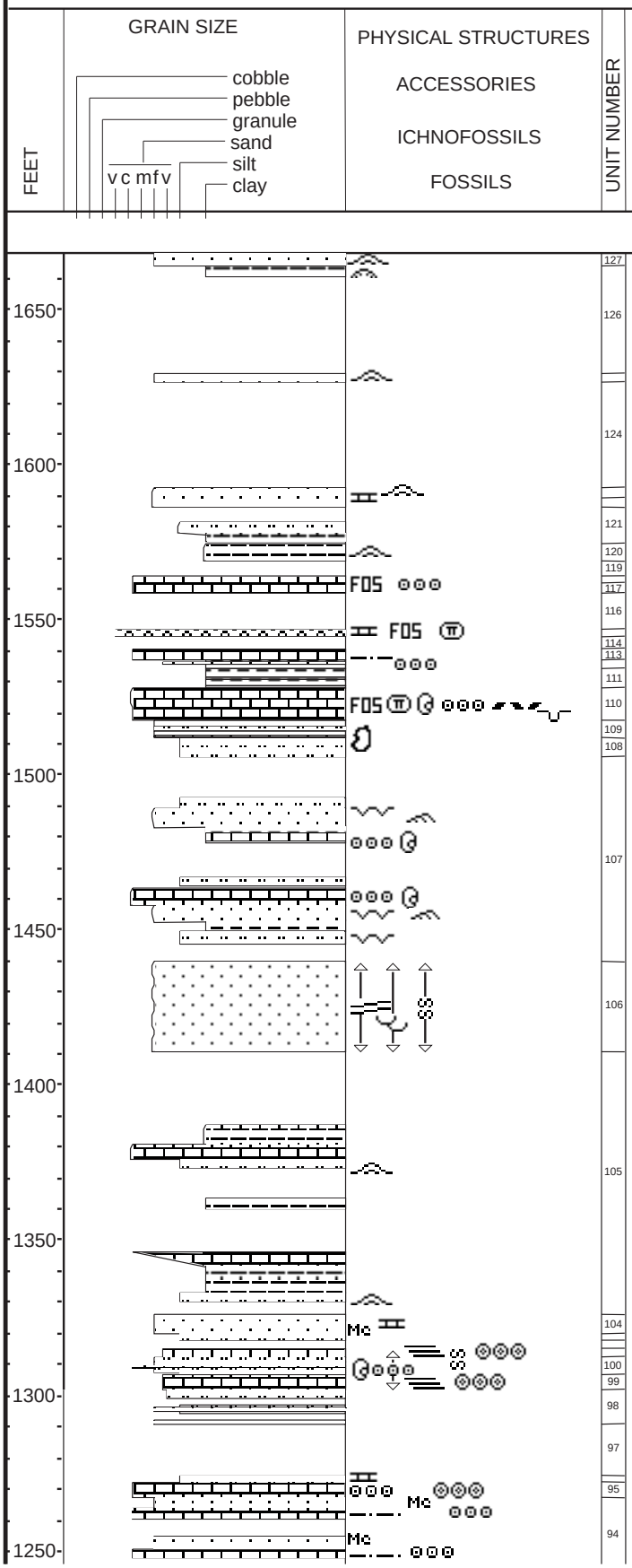
FOSSILS

- Algal Stromatolite
- Ostracodes
- Fish Scales
- Fossils
- Gastropods

UGS 6

Jacks Creek Canyon

The section begins in the S1/2 section 10, T. 13 S., R. 17 E., and ends in the W1/2 section 6, T. 13 S., R. 17 E., of the Salt Lake Base line and Meridian, Carbon County, Utah.



Unit number (measured section thickness [cumulative] in feet - Lithologic description

Unit 127 (1664.5-1668.5): Sandstone, very fine grained, light-gray, current ripples.

Unit 126 (1629.5-1664.5): Covered slope, top few feet mudstone, green with well developed layer of algal stromatolites, 6-12 inch diameter.

Unit 125 (1626.5-1629.5): Sandstone, very fine grained, light-gray, current ripples.

Unit 124 (1592.5-1626.5): Covered slope.

Unit 123 (1589.5-1592.5): Sandstone, very fine grained, very calcareous, flaggy, large ripples.

Unit 122 (1586.5-1589.5): Sandstone, very fine grained, light-gray, calcareous, subround to subangular.

Unit 121 (1574.5-1586.5): Covered slope, interbedded light-gray to white limy mudstone gradational with siltstone.

Unit 120 (1569.5-1574.5): Mudstone, light-gray to light-green, limy, gradational with underlying green shale, top is very thin ripple bedded.

Unit 119 (1564.5-1569.5): Covered slope, weathered shale, green to gray-green.

Unit 118 (1562.5-1564.5): Limestone, oolitic, white to light-gray, weathers white, some bone fragments.

Unit 117 (1559-1562.5): Limestone, oolitic grainstone, interbedded with shale, green, and mudstone, limy, light-gray to light-green, thinly bedded.

Unit 116 (1547-1559): Covered slope, weathered green shale.

Unit 115 (1545-1547): Conglomerate, quartzitic, very fine grained, very calcareous, micritic limestone clasts, fossil fragments, including bone fragments and gar scales.

Unit 114 (1541-1545): Covered slope, probably weathered green shale.

Unit 113 (1537.5-1541): Limestone, light-gray to light-green, slightly silty.

Unit 112 (1534-1537.5): Shale, green and interbedded oolitic grainstone.

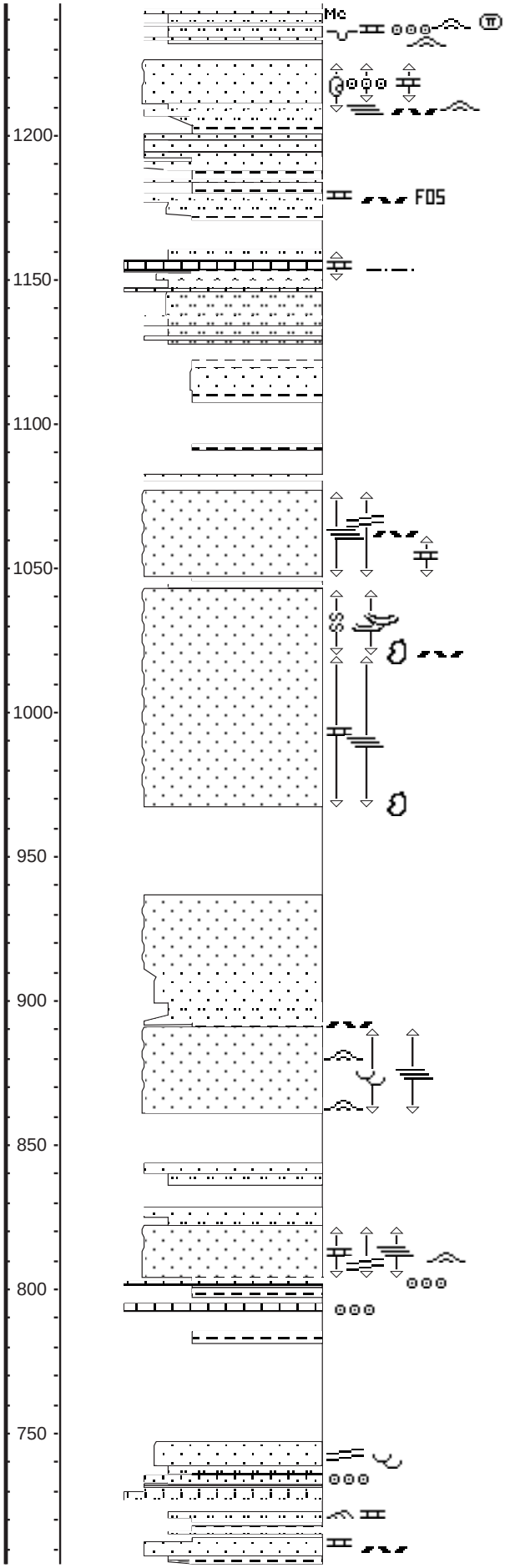
Unit 111 (1528-1534): Shale, green, some thin siltstone.

Unit 110 (1518-1528): Limestone, grainstone, medium-to coarse-grained, ostracodal and oolitic, fish scales, fossil hash, 2-inch-thick lag, rare burrowed surfaces.

Unit 109 (1512-1518): Sandstone, buff to light-orange, fine-grained, interbedded siltstone, green to buff.

Unit 108 (1506-1512): Siltstone, gray-green, small clay concretions.

Unit 107 (1440-1506): Covered slope, some sandstone, fine-grained with interbedded siltstone, gray to green shale, some mudcracks, feeding trace fossils, grainstone, light-tan weathers orange, ostracodal and oolitic up to 6-feet thick, sandstone, fine-grained, climbing ripples.



93 Unit 106 (1411-1440): Sandstone, fine-grained, light-brown, trough cross-bedded, low angle bedding, soft-sediment deformation, slightly flaggy near top.

92

91 Unit 105 (1326-1411): Covered slope, some mudstone, gray to green, some siltstone with ripples, oolitic grainstone, tan to gray limy mudstone, ripples.

90

89

88 Unit 104 (1320-1326): Sandstone, fine-grained, gray, micaceous, highly calcareous, thin bedded.

86

85

83

82

81 Unit 103 (1318-1320): Siltstone, tan to green, micaceous.

79 Unit 102 (1315-1318): Covered slope.

78

77

74 Unit 101 (1312-1315): Limestone, grainstone, light-tan, oolitic to pisolitic and ostracodal, planar laminations.

Unit 100 (1307-1312): Siltstone, interbedded with sandstone, fine-grained, light-gray to green, soft-sediment deformation, 1-inch thick oolitic limestone.

73 Unit 99 (1302-1307): Limestone, grainstone, light-tan, oolitic to pisolitic and ostracodal, planar laminations.

Unit 98 (1290-1302): Partially covered, interbedded sandstone and green siltstone, grading to sandstone, very fine grained near top.

Unit 97 (1274-1290): Covered, possible weathered shale, red and green.

72 Unit 96 (1272-1274): Siltstone, light-tan to brown, very calcareous.

71 Unit 95 (1267-1272): Limestone, oolitic to pisolitic grainstone, poorly sorted, abundant coarse quartz grains.

70 Unit 94 (1242-1267): Sandstone, fine-grained, tan, micaceous, interbedded with limestone, silty, oolitic, mostly covered.

Unit 93 (1232-1242): Siltstone, tan, interbedded with sandstone, oolitic, calcareous, with feeding burrows, some rippled surfaces, gar scales.

69 Unit 92 (1226-1232): Covered slope, calcareous siltstone at top.

Unit 91 (1212-1226): Sandstone, fine-grained, calcareous, ostracodes and ooids.

68

67 Unit 90 (1207-1212): Sandstone, fine-grained, tan to buff, massive at base, planar laminations, some ripples, 10-inch thick ostracodal-rich sandstone, 2 feet gray to buff siltstone, 10 inches thick ostracodal sandstone, limy siltstones, lag with micrite debris.

66 Unit 89 (1200.5-1207): Shale, green, grading up to siltstone, light-green to light-gray, gradational with overlying massive sandstone.

65

64 Unit 88 (1192.5-1200.5): Sandstone, some thin green siltstone stringers.

Unit 87 (1191-1192.5): Shale to mudstone, green.

63 Unit 86 (1188-1191): Siltstone, light-tan, very calcareous, grading upward to sandstone, very fine grained.

Unit 85 (1184.5-1188): Shale, green.

Unit 84 (1184-1184.5): Sandstone, very fine grained, light-gray to tan.

62 Unit 83 (1180-1184): Shale, green.

59 Unit 82 (1176-1180): Sandstone, light-gray to light-tan, very fine grained, very calcareous, rip-ups, fossil debris interbedded with siltstone light-gray to light-green, some red.

56

55

54 Unit 81 (1173-1176): Siltstone, red.

Unit 80 (1171-1173): Shale, green and reddish-purple, grading into siltstone, light-green.

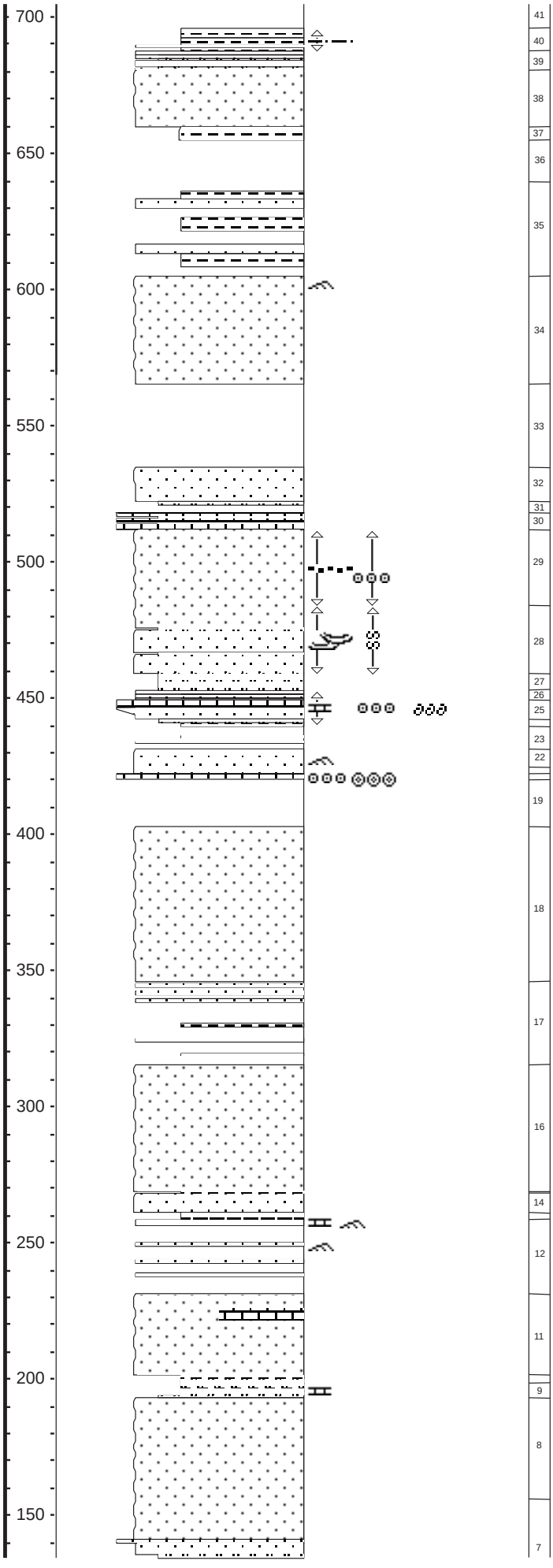
Unit 79 (1160-1171): Covered slope, probably red and green siltstone.

53 Unit 78 (1157-1160): Siltstone, light-tan, calcareous.

50 Unit 77 (1153-1157): Limestone, micrite, light-gray, occasionally silty.

48 Unit 76 (1152-1153): Siltstone and shale, green.

46 Unit 75 (1150-1152): Sandstone, very fine grained, light-tan, very calcareous.



Unit 74 (1128-1150): Siltstone, green to light-gray, mudcracks, interbedded with fine-grained sandstone, 2 feet interbedded mudstone/siltstone, maroon, load casts and trace fossils at base of overlying sandstone, 2.5 feet of carbonate (interbedded micrite and algal with some siltstone/mudstone) at 1,146 feet .

Unit 73 (1077-1128): Mostly covered, some thin sandstone, some green and red shale, top 21 feet mostly red shale and siltstone. 1,047-1,077: Sandstone, fine-grained, channel lag at the base, gray weathering, low angle to horizontal laminations, bottom half calcareous, top half non-calcareous, 1 inch of lag at base of top half (6 feet in length).

Unit 72 (1043-1047): Mostly covered, thin siltstone and shale.

Unit 71 (1020-1043): Sandstone, fine-grained, buff, tabular cross-beds, concretionary zone, channel lag with rip-ups, soft-sediment deformation, cliff former.
USGS corner marker T.12S., R. 17E. section 31.

Unit 70 (967-1020): Sandstone, fine grained, buff, massive, concretionary zone near base, calcareous, parallel laminations.

Unit 69 (937-967): Covered slope, weathered green and maroon siltstone.

Unit 68 (934-937): Sandstone, fine-grained, ledge former.

Unit 67 (909-934): Sandstone, buff to light-brown, laminated, some interbedded green siltstone.

Unit 66 (899-909): Sandstone, very-fine grained.

Unit 65 (891-899): Sandstone, fine grained to siltstone, base is 1-foot thick green shale, channel form with lag contains rip-up clasts of micrite.

Unit 64 (861-891): Sandstone, fine-grained, planar laminated, troughs, some ripples.

Unit 63 (822-861): Covered slope, some buff to light-brown sandstone interbedded with brown to maroon and green siltstone, sandstone is flaggy bedded.

Unit 62 (804-822): Sandstone, fine-grained, light-brown, friable, horizontal to low angle laminations, calcareous, some ripples, weathers to a very vuggy to cavernous surface.

Unit 61 (803-804): Shale, green to reddish purple.

Unit 60 (801-803): Limestone, micrite, light-gray, some ooids.

Unit 59 (797-801): Partially covered, interbedded siltstone and green shale.

Unit 58 (795-797): Covered slope, weathered green shale.

Unit 57 (792-795): Limestone, oolitic grainstone.

Unit 56 (792-785): Covered slope.

Unit 55 (781-785): Shale, green.

Unit 54 (747-781): Covered, across the wash, mostly sandstone with some green shale.

Unit 53 (738.5-747): Sandstone, light-gray to light-tan, very fine grained, flat base, low angle cross-bedding, minor troughs.

Unit 52 (736-738.5): Siltstone, light-gray to green.

Unit 51 (735-736): Limestone, oolitic grainstone with large clasts of micrite, 6 inches of black shale in middle of unit.

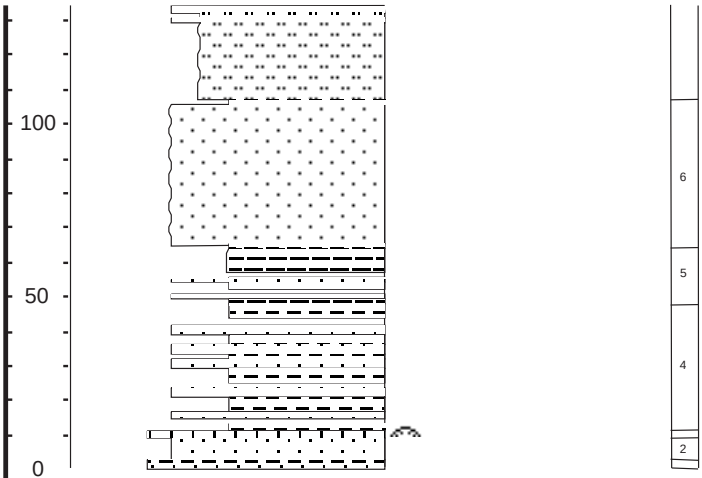
Unit 50 (730-735): Sandstone, light-gray to light-tan, very fine grained, thin bedded, interbedded with light-gray siltstone.

Unit 49 (727-730): Limestone, gray, micrite, some algal laminations, bottom 6 inches limy siltstone grading upward to limestone.

Unit 48 (722.5-727): Covered slope, weathered green shale.

Unit 47 (720.5-722.5): Siltstone, light-orange to tan, base very calcareous, top slightly calcareous, some current ripples at top.

Unit 46 (712-720.5): Partially covered, red shale, some interbedded siltstone.



Unit 45 (710-712.5): Sandstone, light-gray, very fine grained, calcareous.

Unit 44 (707.5-710): Sandstone, very fine grained, slightly calcareous, abundant rip-up clasts.

Unit 43 (706-707.5): Siltstone, light-gray, calcareous, gradational with underlying unit.

Unit 42 (705-706): Shale, red to reddish-purple.

Unit 41 (696-705): Covered slope, probably red shale.

Unit 40 (687.5-696): Shale, red, silty, some thin interbedded very fine grained sandstone.

Unit 39 (680.5-687.5): Sandstone and siltstone interbedded thin beds, sandstone very fine grained and green siltstone.

Unit 38 (659.5-680.5): Sandstone.

Unit 37 (655-659.5): Shale, green to purple.

Unit 36 (640-655): Covered, weathered red shale.

Unit 35 (605-640): Partially covered, sandstone and shale.

Unit 34 (565-605): Sandstone, abundant current ripples toward top of unit.

Unit 33 (535-565): Covered slope.

Unit 32 (522-535): Sandstone.

Unit 31 (518-522): Partially covered, purple to green siltstone at top of unit.

Unit 30 (512-518): Limestone, silty, orange with interbedded green siltstone.

Unit 29 (484-512): Sandstone (similar to unit 28) but with some ooids and some sand-sized micrite clasts, cliff former.

Unit 28 (459-484): Sandstone, fine-grained, calcareous, orange, tabular cross-bedding, large scale (several feet) soft-sediment deformation, silty interbeds.

Unit 27 (453-459): Siltstone, dark purple.

Unit 26 (449-453): Sandstone, fine-grained, calcareous, some shale.

Unit 25 (442-449): Sandstone, very fine grained, calcareous, grading to oolitic grainstone, orange-brown, rare shell fragments, ooids, and skeletal hash at base.

Unit 24 (440-442): Siltstone to mudstone, blue-green, slightly calcareous.

Unit 23 (431-440): Covered slope, one thin sandstone and one thin mudstone unit, each about 1-foot thick.

Unit 22 (424-431): Sandstone, thick bedded, light-gray on fresh surface, dark-gray on weathered surface, minor ripples.

Unit 21 (422-424): Sandstone, thin bedded, very fine grained, orange-brown on fresh surface.

Unit 20 (420-422): Limestone, oolitic to pisolitic, orange-gray, micrite clasts.

Unit 19 (403-420): Covered slope.

Unit 18 (346-403): Sandstone, cliff former.

Unit 17 (315-346): Mostly covered, some thin sandstone, some red to green shale, increasing sandstone towards top of unit.

Unit 16 (269-315): Sandstone.

Unit 15 (268-269): Shale, green, grading up to purple mudstone.

Unit 14 (261-268): Sandstone, very fine grained, green-gray to medium-brown, mostly yellow-tan.

Unit 13 (258-261): Mudstone, mostly green, some purple, slightly limy.

Unit 12 (231.5-258): Mostly covered slope, sandstone beds, thin orange-brown weathered surface, some ripple lamination, top 20 inches sandstone bed very limy.

Unit 11 (201.5-231.5): Sandstone, channel form, irregular cutting base, (carbonate bed at 222 feet, but cut out here).

Unit 10 (198.5-201.5): Green shale and thin siltstone.

Unit 9 (193-198.5): Siltstone to shale thin (6-inch), green, thin very calcareous siltstone, hard, dense, thin interbedded green siltstone to silty shale, almost a silty limestone.

Unit 8 (156-193): Sandstone, massive channel form, base variable, down cutting, so thickness varies laterally.

Unit 7 (107-156): Siltstone, green at base, grading up to light brown to reddish-purple, mostly reddish-purple, grading upward to very fine grained sandstone with thin interbeds of reddish-purple and some green siltstone, some bottom feeding structures in the green siltstone, some rare thin (1-2 inches) limestone, ostracodal, brecciated. Thin channel form sandstone beds near top of unit.

Unit 6 (64-107): Sandstone, channel form, red shale above and below, cross-bedded, fine-grained to very fine grained.

Unit 5 (48-64): Purple mudstone and medium-brown sandstone, some covered slope, purple mudstone with minor green mudstone at top of bed.

Unit 4 (11-48): Interbedded sandstone (40%) and shale (60%), sandstone thin bedded, some covered slope.

Unit 3 (9-11): Algal stromatolites.

Unit 2 (3-9): Fine-grained sandstone.

Unit 1 (0-3): Limy shale, orange-gray, shaly partings.

LEGEND

LITHOLOGY

 Sandstone

 Siltstone

 Organic -Rich Shale

 Shale

 Mudstone

 Limy Shale

 Conglomerate

 Limy Mudstone

 Covered Slope

 Limestone

PHYSICAL STRUCTURES

 - Ripple Drift Lamination/ Climbing Ripples

 - Planar Lamination

 - Soft-Sediment Deformation

 - Trough Cross-Strat.

 - Low Angle Tabular Bedding

 - Cross-Bedding

 - Ripples

 - Mudcracks

 - Concretion/Nodule

LITHOLOGIC ACCESSORIES

 - Calcareous

 - Oolites

 - Shell Fragments

 - Rip-Up Clasts

 - Silty

 - Clasts

 - Micaceous

 - Pisolites

ICHNOFOSSILS

 - Vertical Burrows

FOSSILS

 - Algal Stromatolite

 - Fish Scales

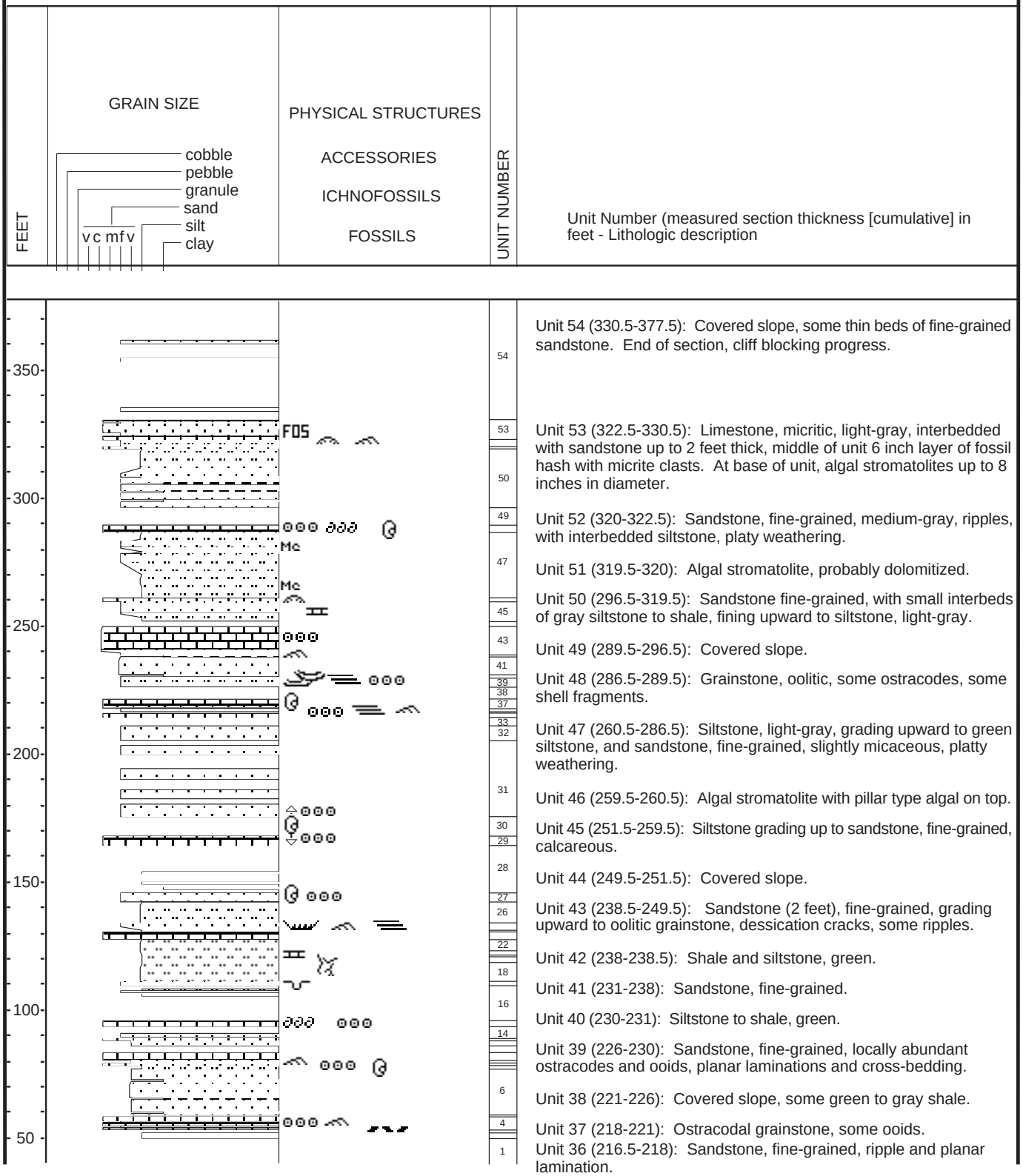
 - Ostracodes

FOS - Fossils

UGS 7a

Fret Rapids Tongue E

The section is located near Fret Water Rapids in Desolation Canyon and begins in the SW1/4NW1/4 section 16, and ends in the NE1/4NE1/4 section 17, T. 14 S., R.17 E., of the Salt Lake Base line and Meridian, Carbon County, Utah.



Unit Number (measured section thickness [cumulative] in feet - Lithologic description

54 Unit 54 (330.5-377.5): Covered slope, some thin beds of fine-grained sandstone. End of section, cliff blocking progress.

53 Unit 53 (322.5-330.5): Limestone, micritic, light-gray, interbedded with sandstone up to 2 feet thick, middle of unit 6 inch layer of fossil hash with micrite clasts. At base of unit, algal stromatolites up to 8 inches in diameter.

50

49 Unit 52 (320-322.5): Sandstone, fine-grained, medium-gray, ripples, with interbedded siltstone, platy weathering.

47 Unit 51 (319.5-320): Algal stromatolite, probably dolomitized.

Unit 50 (296.5-319.5): Sandstone fine-grained, with small interbeds of gray siltstone to shale, fining upward to siltstone, light-gray.

45

43 Unit 49 (289.5-296.5): Covered slope.

41

39

38 Unit 48 (286.5-289.5): Grainstone, oolitic, some ostracodes, some shell fragments.

37

33

32 Unit 47 (260.5-286.5): Siltstone, light-gray, grading upward to green siltstone, and sandstone, fine-grained, slightly micaceous, platty weathering.

31 Unit 46 (259.5-260.5): Algal stromatolite with pillar type algal on top.

30

29 Unit 45 (251.5-259.5): Siltstone grading up to sandstone, fine-grained, calcareous.

28 Unit 44 (249.5-251.5): Covered slope.

27

26 Unit 43 (238.5-249.5): Sandstone (2 feet), fine-grained, grading upward to oolitic grainstone, dessication cracks, some ripples.

22 Unit 42 (238-238.5): Shale and siltstone, green.

18 Unit 41 (231-238): Sandstone, fine-grained.

16 Unit 40 (230-231): Siltstone to shale, green.

14 Unit 39 (226-230): Sandstone, fine-grained, locally abundant ostracodes and ooids, planar laminations and cross-bedding.

6 Unit 38 (221-226): Covered slope, some green to gray shale.

4 Unit 37 (218-221): Ostracodal grainstone, some ooids.

1 Unit 36 (216.5-218): Sandstone, fine-grained, ripple and planar lamination.

Unit 35 (215.5-216.5): Covered slope.

Unit 34 (214.5-215.5): Grainstone, ostracodes and ooids.

Unit 33 (210.5-214.5): Covered slope.

Unit 32 (205.5-210.5): Sandstone, fine-grained.

Unit 31 (175.5-205.5): Sandstone, fine-grained, bottom 4 feet contains ostracodes and ooids, mostly covered slope, some thin beds.

Unit 30 (167.5-175.5): Covered slope.

Unit 29 (164-167.5): Grainstone, ostracodes and ooids.

Unit 28 (145.5-164): Covered slope, some maroon siltstone and green shale.

Unit 27 (142-145.5): Sandstone, pale-orange, abundant ostracodes, some ooids.

Unit 26 (133.5-142): Siltstone, green to gray and purple, lag layer near base.

Unit 25 (131.5-133.5): Siltstone grading upward to sandstone, very fine grained, planar laminations, ripples.

Unit 24 (130.5-131.5): Siltstone, green to gray, shaly laminations.

Unit 23 (127.5-130.5): Ostracodal grainstone.

Unit 22 (124-127.5): Siltstone, gray to green, pale-orange on top.

Unit 21 (122-124): Siltstone, red grading to green.

Unit 20 (121-122): Siltstone, very calcareous, buff.

Unit 19 (118-121): Siltstone, purple grading upward to dark-green.

Unit 18 (111-118): Siltstone, maroon to light-green at base, bioturbated.

Unit 17 (109.5-111): Sandstone, fine-grained, pale-orange, some burrowing, ledge former.

Unit 16 (95.5-109.5): Covered slope, with dark gray siltstone some thin sandstone beds towards the top of the unit.

Unit 15 (93.5-95.5): Ostracodal limestone, sandy, some ooids, shell fragments near top of unit.

Unit 14 (88.5-93.5): Covered slope, probable green shale with 1 foot of sandstone.

Unit 13 (88-88.5): Ostracodal grainstone.

Unit 12 (86-88): Sandstone, very fine grained, grading up to siltstone.

Unit 11 (83-86): Covered slope.

Unit 10 (80-83): Ostracodal grainstone, some trace fossils.

Unit 9 (79-80): Sandstone, very fine grained, light-gray, highly rippled.

Unit 8 (78-79): Oolitic grainstone, with some ostracodes, micrite clasts up to 2 inches in diameter.

Unit 7(77-78): Siltstone, green.

Unit 6 (58-77): Sandstone, very fine grained to fine-grained, thin bedded to platy, yellowish-tan to buff, some gray shale, top has some ripples.

Unit 5 (57-58): Covered Slope.

Unit 4 (53-57): Ostracodal grainstone, ripple marks, lag about 1 foot from base, some ooids, some sandstone.

Unit 3 (51.5-53): Covered Slope.

Unit 2 (50-51.5): Siltstone, gray-green.

Unit 1 (0-50): Covered slope.

LEGEND

LITHOLOGY

Sandstone
Shale
Limestone
Coquina
Siltstone
Covered Slope

PHYSICAL STRUCTURES

- Ripple Drift Lamination/ Climbing Ripples
- Planar Lamination
- Rip-Up Lag
- Cross-Bedding

LITHOLOGIC ACCESSORIES

- Calcareous
- Rip-Up Clasts
- Shell Fragments
- Micaceous
- Oolites

ICHNOFOSSILS

- Unidentified Bioturbation
- Vertical Burrows

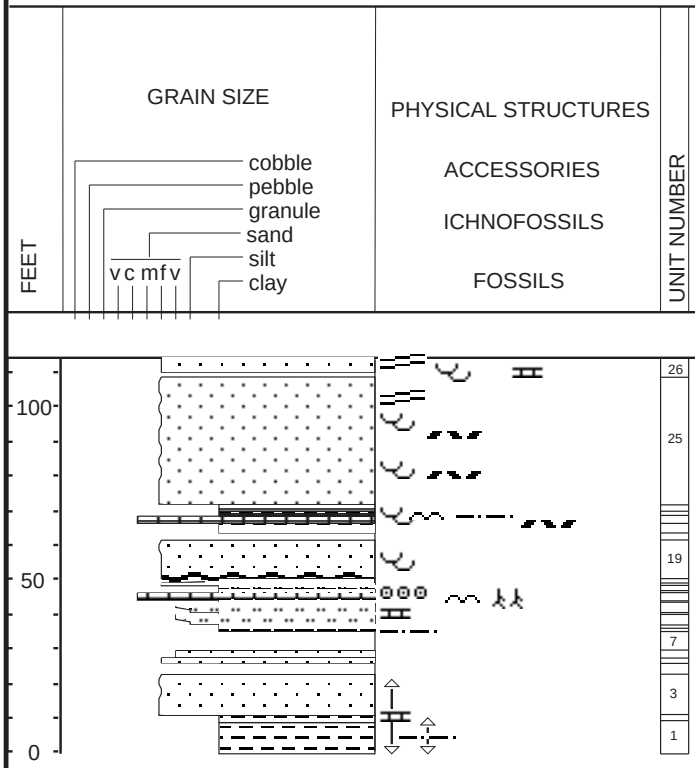
FOSSILS

- Algal Stromatolite
- Ostracodes
- Fossils

UGS 7b

Fret Water Rapids Tongue F

The section is located near Fret Water Rapids in Desolation Canyon and begins and ends in the SW1/4NE1/4 section 17, T. 14 S., R. 17 E., of the Salt Lake Base line and Meridian, Carbon County, Utah.



Unit Number (measured section thickness [cumulative] in feet) - Lithologic description

Unit 26 (109-114.5): Sandstone, partially covered base, light-tan, very fine grained, slightly calcareous, some low angle and trough cross-beds. Overlain by thick unit of red shale.

Unit 25 (72-109): Sandstone, fine-grained, light-tan, massive, some low angle and trough cross-beds, some lag rip-up clasts of calcareous siltstone and silty limestone.

Unit 24 (70-72): Shale, light-gray to light-green, some dark-gray, one limy mudstone unit (6 inches thick) in lower half of unit.

Unit 23 (68.5-70): Oolitic grainstone with interbedded shale in the lower half of the unit. Shale light-gray to light-green, silty some wave ripples, occasional small trough cross-beds, generally coarsening upward unit except capped with light-gray to light-green limy mudstone, which is transitional with overyling unit.

Unit 22 (66.5-68.5): Limestone to limy mudstone, light-gray to light-green at base, rare ooids, grading upward to coarse oolitic grainstone, light-yellow, unit weathers red. Grainstone unit has wave ripples and trough cross-bedding near the top, base of upper half of the unit has numerous clasts of green shale to limestone, rare chert.

Unit 21 (63.5-66.5): Shale, light-gray to light-green.

Unit 20 (61.5-63.5): Covered slope.

Unit 19 (50.5-61.5): Sandstone, very fine grained to fine-grained, rare medium-grained, weathers red, limonitic, subround to subangular, frosted grains, some clear, trough cross-beds.

Unit 18 (48.5-50.5): Siltstone grading to very fine grained sandstone, calcareous light-gray to green, base sharp, top undulatory due to loading from overlying unit. Fining upward to 1-2 inch shale at top, light-gray to light-green.

Unit 17 (48-48.5): Shale, light-gray to light-green.

Unit 16 (47-48): Oolitic grainstone, black at base to brownish-orange at top, coarsening upward.

Unit 15 (46.5-47): Shale, light-gray to light-green, some black, near the top of the unit 1 inch oolitic grainstone.

Unit 14 (44.5-46.5): Limestone, argillaceous, some ooids, grading upward to oolitic grainstone, light-gray to light-brown, top 1-inch dark-gray to black micrite limestone with some ooids. Base flat, top generally sharp, some wave ripples some root traces, spreading laterally but not very deep.

Unit 13 (44-44.5): Shale to mudstone, non-calcareous.

Unit 12 (41-44): Siltstone to very fine grained sandstone, green, calcareous.

Unit 11 (40.5-41): Limy mudstone, weathered surface often stained red.

Unit 10 (37.5-40.5): Siltstone, grading upward to very fine grained sandstone, green, limonitic, rare muscovite, calcareous.

Unit 9 (36-37.5): Limy mudstone, green.

Unit 8 (35.5-36): Weathered limy mudstone, silty, green, resistive.

Unit 7 (30-35.5): Covered slope.

Unit 6 (27.5-30): Sandstone, light-gray, very fine grained, subround, limonitic, flat base and top, some flat parallel and low to moderate angle crossbeds.

Unit 5 (26-27.5): Interbedded very fine grain sandstone and light gray to light-green shale.

Unit 4 (22.5-26): Covered slope.

Unit 3 (11-22.5): Sandstone, fine-grained, subround, frosted and some clear grains, calcareous.

Unit 2 (9-11): Shale, green, silty, calcareous, transitional with underlying red shale. Bottom of Green River Formation.

Unit 1 (0-9): Shale, red, calcareous, silty, hard, dense. Top of Colton Formation.

LEGEND

LITHOLOGY

 Sandstone

 Siltstone

 Shale

 Mudstone

 Limy Mudstone

 Covered Slope

 Limestone

CONTACTS

 Undulating

PHYSICAL STRUCTURES

 - Trough Cross-Strat.

 - Low Angle Tabular Bedding

 - Wave Ripples

LITHOLOGIC ACCESSORIES

 - Calcareous

 - Rip-Up Clasts

 - Oolites

 - Silty

ICHNOFOSSILS

 - Rootlets